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PC Update

September 1993

The Magazine for MS-DOS®, UNIX® and OS/2™ Personal Computer Users
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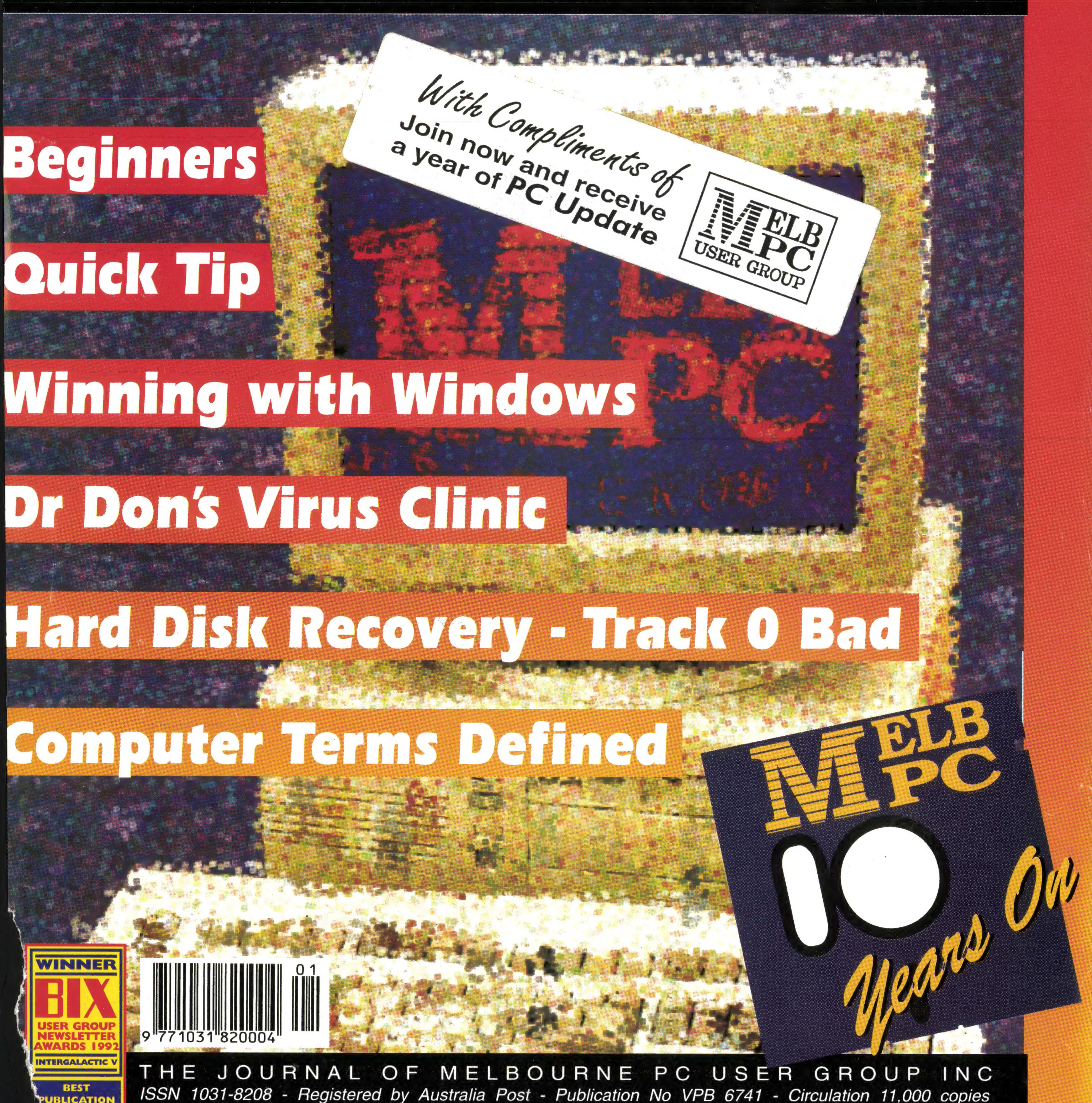

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Quick Tip

Winning with Windows

Dr Don's Virus Clinic

Hard Disk Recovery - Track 0 Bad

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PC Update

ISSN 1031-8208

September 1993 Volume 10 Issue 8

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Mail to

PO Box 283
South Melbourne VIC 3205
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First Aid (Help) Line

(10.30 AM – 3 PM) **69 69 200**

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Messages
(9600 bps) **699 6788**
(2400 bps) **699 6109**

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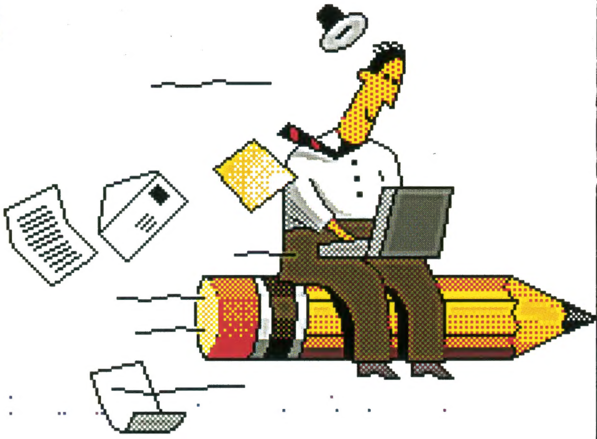
Q&A Write for Windows

by Ash Nallawalla



I have been a Symantec Q&A (the database) user ever since version 1.0 was released around 1986. It is accompanied by a DOS-based word processor called *Q&A Write* (QAW). This word processor has been also available as a stand-alone product and has earned some favourable mention in many magazines. QAW has not been my primary word processor; I use several, including *WordStar 2000* and *XyWrite* for specific needs that are not met by *Word for Windows* (W4W), my favourite.

Symantec also had a Windows-based word processor called *JustWrite* but it seemed to offer few more features than the copy of Windows *Write*, which we got free with Windows. Either Write was good enough for you or you needed a heavyweight word processor.

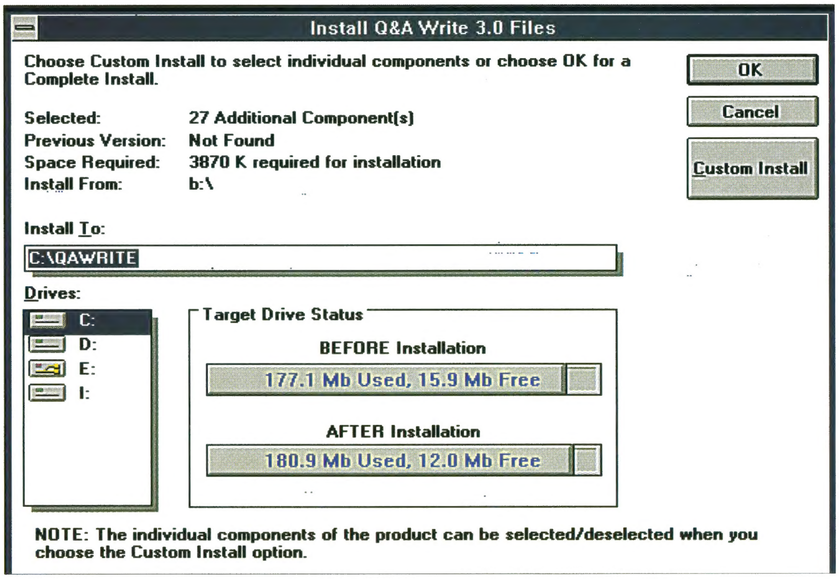
I used QAW because it interfaced well with my Q&A databases for producing invoices and mail-merged letters. Symantec recently released a Windows version of this word processor with a major facelift that will make it a good, low-priced contender that will find a niche.

Q&A Write 3.0 for Windows (QAWW)

QAWW is a Microsoft Windows-based word processor that can produce files compatible with Word for Windows (W4W) and WordPerfect for Windows (WP4W), although I can only vouch for the former. It is called version 3.0 to continue the sequence from its DOS- based parent. It does not have the "look and feel" of W4W and can produce files in its own format by default. It has a spelling checker and a thesaurus but not the charting, equation editing, grammar checking, and drawing features found in W4W. It is OLE/DDE compliant and can link to other such compatible Windows products.

Packaging

The packaging describes QAWW as "100% fat-free" and I cannot agree more. Fully optioned, it occupies just 4 MB; the minimum installation is just 1.7 MB. Your old 80286 AT is good enough but you will need Windows 3.1 and DOS 3.1 or later. You can make do with 2 MB RAM although 3 MB is recommended. A 100% Microsoft-compatible mouse is recommended. It comes with a well-written user's manual of about 175 pages and this is supplemented by comprehensive online help.



Install Q&A Write 3.0 Files

Choose Custom Install to select individual components or choose OK for a Complete Install.

Selected: 27 Additional Component(s)
Previous Version: Not Found
Space Required: 3870 K required for installation
Install From: b:\

Install To: C:\QAWRITE

Drives: C: D: E: I:

Target Drive Status

BEFORE Installation: 177.1 Mb Used, 15.9 Mb Free

AFTER Installation: 180.9 Mb Used, 12.0 Mb Free

NOTE: The individual components of the product can be selected/deselected when you choose the Custom Install option.

Q&A Write has an informative installation screen.

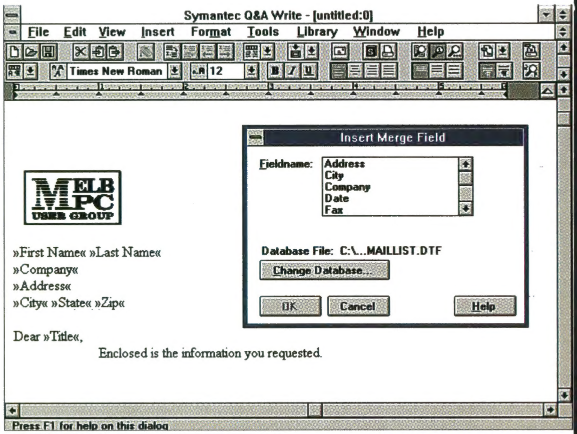
In Use

I should say here that QAWW does "all the usual things" found in modern word processors. Gone are the days when you could tout the ability to change fonts, insert graphics, zoom, insert columns, and so on.

I would like to dispel the impression that QAWW is pitched solely as a cheap substitute for W4W or WP4W. Many nice touches distinguish QAWW as a middleweight product. The tool bar can be customised so that it depicts the buttons you have assigned to your frequently needed commands, in the sequence you wish. The mail-merge feature is compatible with Q&A, dBASE and Paradox databases. Like all good word processors, QAWW comes with an outliner, which is essential to important writing projects.

I was unable to test the Mail and Fax interfaces because I did not have suitable software or hardware. The literature suggests that QAWW is a "mail enabled" product and you can send cc:Mail or Microsoft Mail easily from within QAWW.

QAWW is a good candidate for users of laptop computers. Its small installed size is only one such feature. You can choose "fat pointers" so as to get a



Symantec Q&A Write - [untitled:0]

»First Name« »Last Name«
»Company«
»Address«
»City« »State« »Zip«

Dear »Title«,

Enclosed is the information you requested.

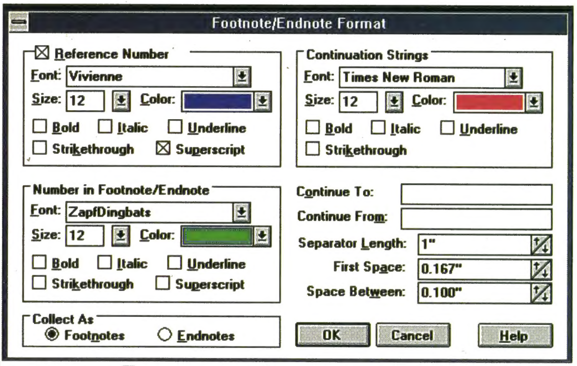
Insert Merge Field

Fieldname: Address, City, Company, Date, Fax

Database File: C:\...MAILLIST.DTF

Press F1 for help on this dialog

Mail Merge is supported.



☒ Reference Number
Font: Vivienne
Size: 12 Color:
☐ Bold ☐ Italic ☐ Underline
☐ Strikethrough ☒ Superscript

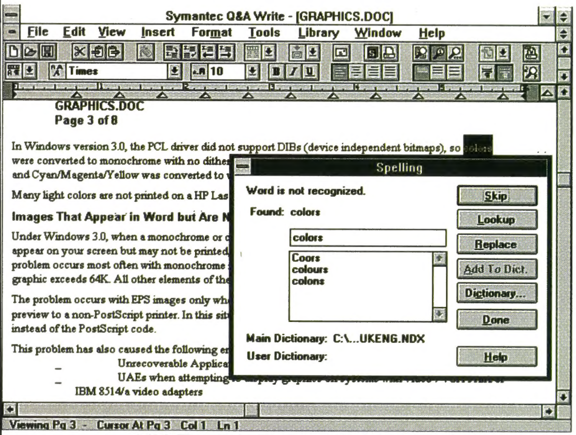
Continuation Strings
Font: Times New Roman
Size: 12 Color:
☐ Bold ☐ Italic ☐ Underline
☐ Strikethrough

Number in Footnote/Endnote
Font: ZapfDingbats
Size: 12 Color:
☐ Bold ☐ Italic ☐ Underline
☐ Strikethrough ☐ Superscript

Continue To:
Continue From:
Separator Length: 1"
First Space: 0.167"
Space Between: 0.100"

Collect As: ● Footnotes ○ Endnotes

Footnotes and endnotes are comprehensive.


Symantec Q&A Write - [GRAPHICS.DOC]
File Edit View Insert Format Tools Library Window Help
Times
10
Spelling
Skip
Lookup
Replace
Add To Dict.
Dictionary...
Done
Help

GRAPHICS.DOC
Page 3 of 8

In Windows version 3.0, the PCL driver did not support DIBs (device independent bitmaps), so colors were converted to monochrome with no dither … and Cyan/Magenta/Yellow was converted to …

Many light colors are not printed on a HP Las…

Images That Appear in Word but Are N…

Under Windows 3.0, when a monochrome or c… appear on your screen but may not be printed… problem occurs most often with monochrome … graphic exceeds 64K. All other elements of the…

The problem occurs with EPS images only wh… preview to a non-PostScript printer. In this sit… instead of the PostScript code.

This problem has also caused the following er…
- Unrecoverable Applica…
- UAEs when attempting … IBM 8514/a video adapters

Word is not recognized.
Found: colors
colors
Coors
colours
colons
Main Dictionary: C:\...UKENG.NDX
User Dictionary:

Viewing Pg 3 - Cursor At Pg 3 Col 1 Ln 1

UK English is used by the spelling checker.

large I-beam and pointer that will be clearly seen on a small liquid-crystal screen.

I tested its compatibility with W4W by giving it some reasonably complex documents up to 100 pages in length. I edited them in QAWW and then reopened them in W4W. This was done not to try any unusual acrobatics but to simulate typical additions or corrections in an office environment. I did not like the way it treats graphics and tables: they reside within frames, which require you to go into a special mode if you want to edit them. In W4W, you simply place the cursor in a table and type away. But this is simply a matter of being used to one way of doing things.

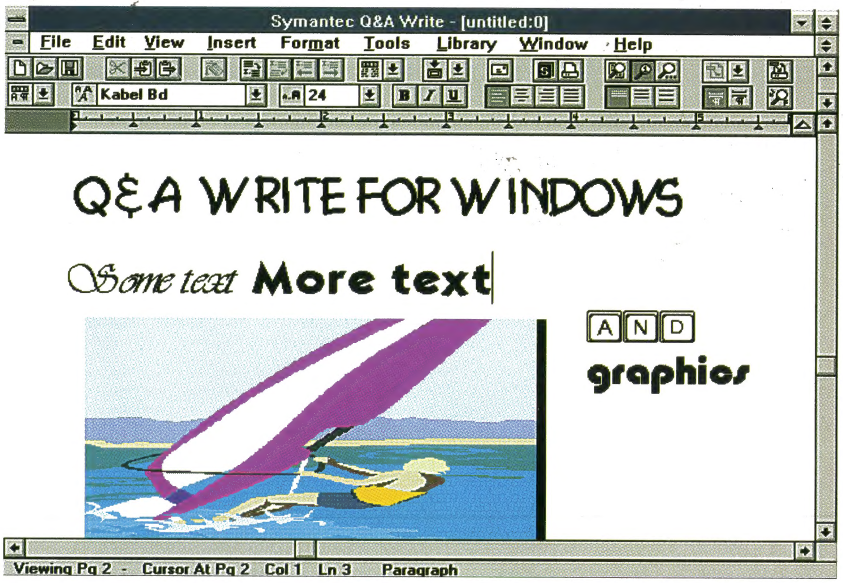
I found no problems with compatibility with W4W. I don't have access to WP4W so I cannot comment on that. There is no macro language such as WordBasic or the ability to store macros. Remember, this is a mediumweight product.

Conclusion

QAWW will appeal to those who want a low-priced but comprehensive word processor. I think that it will suit travellers and students in particular and others in general if they do not need the advanced features of W4W. I need the ability to generate Windows Help files and I cannot do so from QAWW because the requisite utility I use only works with W4W. Otherwise it would have been entirely suitable for my correspondence and article-writing needs.

Availability

If you own *JustWrite*, you can get QAWW free directly from Symantec, although you have to pay $12 for the shipping. That might have been a special promotional offer, so don't abuse me if it is over. Full retail is $99 from any Symantec dealer. ❑


Symantec Q&A Write - [untitled:0]
File Edit View Insert Format Tools Library Window Help
Kabel Bd
24

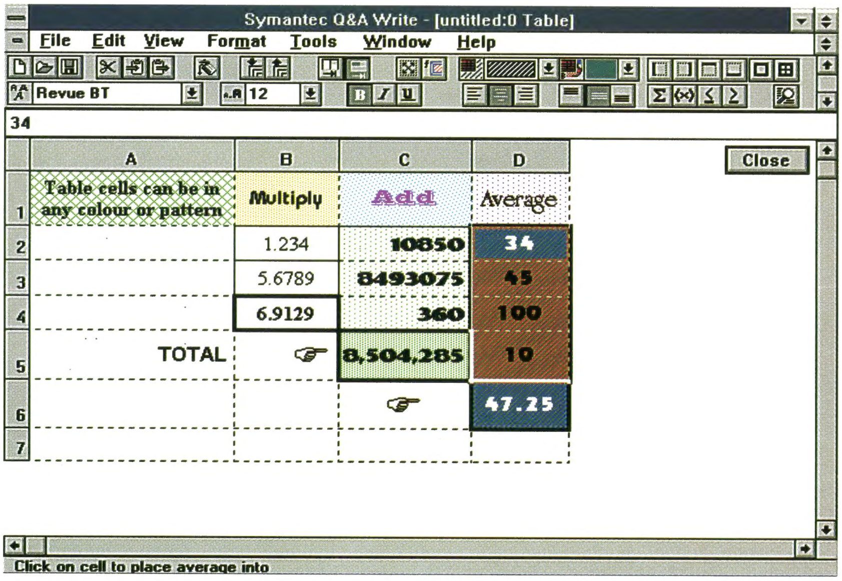
Q&A WRITE FOR WINDOWS

Some text More text

AND graphics

Viewing Pg 2 - Cursor At Pg 2 Col 1 Ln 3 Paragraph

Text and graphics are supported.

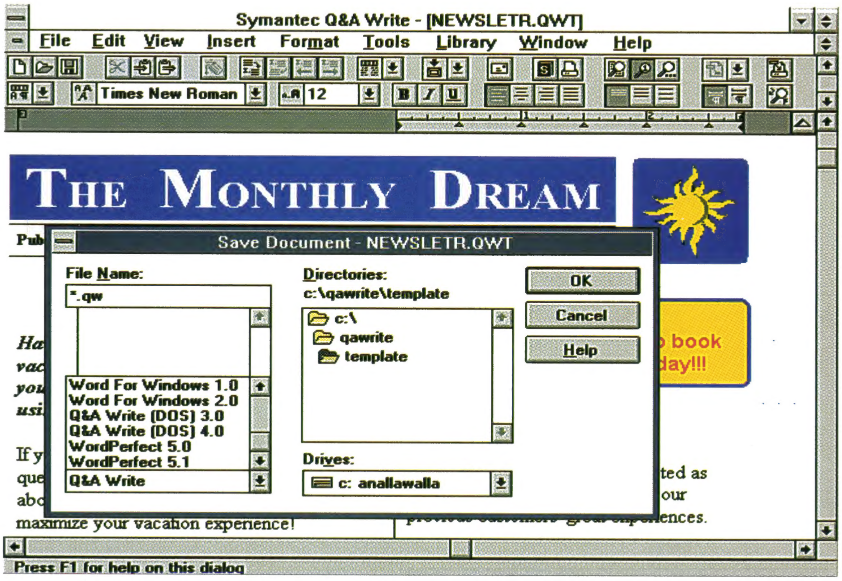

Symantec Q&A Write - [untitled:0 Table]
File Edit View Format Tools Window Help
Revue BT
12
Close

34

	A	B	C	D
1	Table cells can be in any colour or pattern	Multiply	Add	Average
2		1.234	10850	34
3		5.6789	8493075	45
4		6.9129	360	100
5	TOTAL	☞	8,504,285	10
6			☞	47.25
7				

Click on cell to place average into

You can perrform simple spreadsheet-like operations.


Symantec Q&A Write - [NEWSLETR.QWT]
File Edit View Insert Format Tools Library Window Help
Times New Roman
12
THE MONTHLY DREAM
Save Document - NEWSLETR.QWT
OK
Cancel
Help
book
day!!!

File Name: *.qw
Word For Windows 1.0
Word For Windows 2.0
Q&A Write (DOS) 3.0
Q&A Write (DOS) 4.0
WordPerfect 5.0
WordPerfect 5.1
Q&A Write

Directories: c:\qawrite\template
c:\
qawrite
template

Drives: c: anallawalla

Pub…
Ha… vac… you… usi…
If y… que… abo… maximize your vacation experience!
…ted as …our …ences.

Press F1 for help on this dialog

Documents can be saved in many formats.

Why Should You Join Melb PC?

Strength

Melbourne PC User Group Inc. is the biggest computer club in the Southern Hemisphere, and the fourth largest in the world. It was founded, and is still run, for people like ***you***, its members.

The Group employs a full-time Operations Manager and two administrative assistants. Apart from that and some training, all functions of the club—BBS maintenance; magazine production; collection and distribution of shareware; organisation of SIG and monthly meetings and much more, is performed by volunteers.

The Group today proudly has a membership of people from all walks of life and with a broad range of computer skills. With this vast store of knowledge, members have access to information and help in numerous fields—programming, software solutions, communications, DOS and Windows, to name just a few.

Library

Melb PC maintains an extensive and up-to-date software library of programs (over 2000 disks containing over 40,000 programs!) for IBM-type personal computers, obtained from around the world. This library of shareware software is available only to Melb PC members and is supplied on new disks at very low prices.

Training

One of the Group's most important and popular services is the provision of training in a diverse range of computer skills, from starting with computers to advanced programming.

Melb PC has its own fully-equipped training centre, using Hewlett-Packard 486 systems. Because courses are run as a service to members they are budgeted on a break-even basis. This enables the courses to be 20 to 30 per cent of the cost of a similar course from outside organisations.

Students are taught in a classroom environment with an instructor and one computer per student. *Starting Computing, Using DOS,* and *Turbo Pascal* are typical subjects taught in this way.

Full weekend workshops, some of them live-in, also prove very popular and are run about six times a year.

All courses provide suitable training material and facilities. In addition, dial-in help is available for students between classes, as is follow-up coaching after the classes are finished.

First-Aid and Dial Help

This unique service is made available free to members simply because volunteers within the Group give their time and knowledge to assist you with any computing problems you may have. Over 300 telephone numbers of unpaid volunteers, with day- and night-time contacts, are listed in this magazine (they are on these two pages, in the copies sent to members). The service covers over 130 separate topics.

Special Interest Groups (SIGs)

The Group has a number of SIGs as a service to members sharing a common interest in particular aspects of personal computing. A SIG can deal with any topic relating to personal computing, ranging from programming languages to hardware and peripherals, or how to get the best from your equipment.

There are also a number of regional SIGs, catering for members in outlying geographical areas.

A list of meeting dates, places and contacts for SIGs is published each month in this magazine, (see later in this issue), together with reports of previous and forthcoming activities. Attendance at any or all SIG meetings is available to any member.

Magazine

PC Update, is the journal of the Melbourne PC User Group, and is sent to you 11 times a year as part of your membership privileges. ***PC Update*** publishes articles written by members and all members are welcome, indeed encouraged, to write articles on a subject they know about, to share with others. ***PC Update*** also reprints occasional articles from overseas user groups, ensuring that Melb PC members are kept as up-to-date as possible.

In 1991 ***PC Update*** was honoured with no less than three awards in the International BIX Newsletter Contest, including the world-wide award for "**Best Feature Articles**". In 1992 it was the outright winner of "**Best Publication**", beating all other user groups world-wide, including PC and Macintosh. Again in 1993, it received yet another award, also for feature articles. Many members join the Group just for the value ***PC Update*** provides, well worth the annual membership fee on its own, and then discover all the other benefits of membership.

Bulletin Board

Melb PC operates a bulletin board system (BBS), 22 hours a day as one of its member services. The BBS runs on 16 lines and plans are well-advanced to provide the BBS with many more lines, expected be available in the very near future.

The BBS has two main functions—electronic mail and message exchange, and file transfer facilities. The mail and messaging facilities enable members to exchange messages with each other and to seek help on a wide range of topics not only from other members but also from the personal computing community world-wide. Through this service, users of the BBS have access to an enormous pool of experience and talent on a vast array of subjects. If you have a problem, put a message on the BBS and, more often than not, it's answered in a day or so!

In the file transfer areas the BBS carries many files on a range of topics. These have been uploaded by members who found them useful and can be downloaded for use by other members. They include many useful utilities and the latest version of shareware software, often obtained from overseas BBSs before appearing in Australia in other outlets. ❑

. Join NOW!

MELB PC Membership Application

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Home Postal Address

Postcode — Country

Telephone Numbers — BH: ( ) — AH: ( )

Job Title

Employer/Company Name*

* Attach list if more than one representative of a corporate member is being nominated with this application
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Joining Fee
Type of Membership:

- ☐ $10 per member
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- ☐ Corporate (2 reps)—$100, extra reps—$50 each
- ☐ Full Time Student—$30 (Students: attach photocopy of union card or letter from educational institution confirming *full-time* student status.)

Total:

I want ☐ / do not want ☐ to receive occasional promotional mail from commercial organisations.

I hereby apply for membership of Melbourne PC User Group Inc and agree to abide by its rules while I remain a member. — Signature: — Date / /

Payment Details/Credit Card Authority

Forward to Melb PC, PO Box 283, South Melbourne VIC 3205, Australia

Name

Home Postal Address

Postcode — Country

Telephone Numbers — BH: ( ) — AH: ( )

Cheque (payable to Melbourne PC User Group Inc.) enclosed ☐
or Debit my credit card (Bankcard ☐ / Mastercard ☐ / Visa ☐) Expiry Date ____/____ with — **$**

Credit Card No. ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Signature — Date / /

Editorial...

Ash Nallawalla

ARTWORK: CORELDRAW! 4.0

Contacting the Editors:

Peter Smith, *Managing Editor*, should be contacted for enquiries relating to overall content, including Features and Departments.

Ash Nallawalla, *Editor*, should only be contacted to discuss Reviews.

Welcome to *PC Update*, if this is the first copy you have seen. Starting this month, you will be able to buy *PC Update* from newsagents all over this state, although we hope you will soon join the **Melbourne PC User Group** (Melb PC) and receive it and many other benefits each month. See pages 6–7 (not in members' version) for details.

PC Update, Black Label Edition?

The copies available at newsagents are slightly different to those received by members. No, there are no pinups of computers but our members' copies contain the telephone numbers of our *Dial Help* volunteers. They are the people you can call if you have a problem with your PC or some software. The non-members' copies contain popular reprints from earlier issues of *PC Update*.

This magazine is a reflection of our user group: it is an all-volunteer production and it has won many prestigious awards. But look at the other activities Melb PC offers. We have two bulletin board systems (BBSs) with a total of 18 lines. There is a Special Interest Group (SIG) meeting nearly every day of the month — and you can attend as many as you want, free of charge. We have occasional bulk purchases of shareware registrations at a healthy discount and other products such as modems if there is enough interest. Many businesses offer a discount to members. The $100 discount offered by Borland to attendees of its recent World Tour seminar is yet another example of the value you get from membership.

Our Previous Meeting

At the July meeting we had over 1000 in attendance, thanks to Borland, who hired the World Congress Centre. Richard Schwartz was the last-minute substitute for Philippe Kahn. He was the creator of Paradox and was thus able to answer the curliest of technical questions. He gave one of the first public viewings of Quattro Pro for Windows 5.0 and the next version of Paradox for Windows. He hooked up two machines and "published" data from one to the other. This feature created quite a buzz and will appeal to those who need to share data in spreadsheets and databases.

Hewlett-Packard was the other presenter and we were treated to a very fascinating account of mobile computing developments and the new palmtop HP300.

The 95 percent of our members who cannot attend meetings miss out on such news, not because no auditorium that we can afford could accommodate all of us, but because the presenters cannot always arrange to supply review material for this magazine.

Articles and Reviews

The backlog of articles and reviews is over. Those of you who offered to write reviews for the first time should approach the Shareware Librarian and ask if there are any new software arrivals that need to be reviewed. Our policy is to allow writers to keep and register the software they review. Regular reviewers are the ones who not only write well on the subject but who capture screens, collect the software, and deliver the review on schedule. They tackle shareware as cheerfully as they do some attractive commercial offering.

Gene Wang Meeting Reminder

Note that we are having **TWO** meetings in September. The first is the scheduled Multimedia event on the first Wednesday at Clunies Ross House; the second meeting will be on the 15th at the venue listed in the Symantec insert (members' copies only).

Symantec VP **Gene Wang** will address us on the 15th, and you might be interested to know that having VIP speakers two months in a row at user group events are not common, even in the US. Symantec is honouring our Tenth Anniversary, so come along and celebrate!

Ash

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ARTWORK: CORELDRAW! 4.0

CPU (Club President's Update)

by Charles Wright

Our last monthly meeting at the World Congress Centre was a graphic indication of the achievements we've made in this, our 10th anniversary year.

We drew a crowd of at least 1100 people, signed on another 40 new members, and delighted the two presenting companies—Borland, who'd kindly paid the daunting $3000 for the hire of the venue, and who has historically been our greatest benefactor from the software industry, and Hewlett-Packard, our biggest supporter in donations and discounts of hardware. Of course we also delighted those members who either won a free Hewlett-Packard 100LX palmtop, or an extraordinary number of watches.

By the time you read this, our enthusiastic volunteers will have plucked from the crowds at PC93 more new members, and spread the message among computer would-be's, novices and experts, that this group represents the best investment anyone can make in this information society.

With those new additions, our membership will have reached a record: perhaps 7500, perhaps even more.

Over the past couple of weeks we will probably have held a two-day planning session to discuss the issues arising from the consultant's report we commissioned to examine our operations and establish financial and administrative procedures. That led in turn to a half-day workshop in late June, where we appointed various sub-committees to examine each area of activities, either present or proposed.

I hope I'm not being presumptuous in suggesting that the next committee will want to follow through on that foundation—the first business plan we've had. It will allow us to take on new initiatives and find ways to preserve and increase our revenue flow, and improve and cement the administrative structure that binds it all together. Many important decisions have to be made, and there's a pressing need to consolidate all the initiatives we took this last year.

If we do proceed, that planning and implementation is going to take up quite a bit of time over the next few months, but I'm confident that it will result in the delivery of a vision that the most active supporters of Melb PC have shared with me over the past few years, of a powerful resource that will directly benefit our members, and indirectly, the community at large.

What pleases me most about all this is the extent to which more and more club members are participating at every level. There's a new sense of personal "ownership" of the group, political divisions seem to have been resolved, or if not resolved, at least suspended, and communications between the members and their committee have never been better.

I want to place on record my own and the committee's profound appreciation for the energy and enthusiasm, the ideas and tireless support that this growing band of volunteers has given the group. I don't want to single out anyone, and there are far too many of them to name individually. You've been an inspiration to us, and the pioneers of a growing movement to contribute...to move from a passive role to an active one.

Perhaps the greatest thing you've offered is a spirit of friendliness and courtesy that is vital to a group like ours, which includes highly intelligent, opinionated individuals. You're proved that a larger group doesn't have to be less friendly. Indeed, my own observation is that our group is actually more approachable and welcoming than it ever was.

We're going to need this collective good will and energy even more next year, in what I believe will be the most important period of Melb PC's history.

Although it's important for us to acknowledge and celebrate what we've all achieved, it's equally necessary to avoid becoming complacent, and to realise that there are areas that need to be improved, that growth is inevitable in any healthy organisation, and that much more needs to be done. ❑

Tenth Anniversary Logo Winner

Congratulations to Dario Pamich, who is the winner of our Tenth Anniverary Logo Design Competition. His design was selected from the large number of interesting ideas received.

The logo at the left was developed from Dario's design by Stephen Davey, a professional graphic artist (and regular producer of *PC Update*'s front cover).

The logo will be used for all of Melb PC's Tenth Anniversary functions. ❑

Acknowledgments

Melbourne PC User Group Inc. gratefully acknowledges the support provided by the following organisations:

Borland International (Australia) Pty Ltd for ongoing user group support and sponsoring the "Volunteer of the Year" award.

Symantec for sponsoring the "Volunteer of the Month" awards.

Hayes for the supply of modems for the group's BBS.

Hewlett-Packard for a printer, scanner and Vectra PCs, used in training and a Vectra PC used to produce *PC Update*.

Ventura Software Incorporated for copies of their products used to produce *PC Update*.

Electroboard Pty Ltd, (John Facey, (03) 859 9555) for supplying projection equipment to our monthly meetings.

Training Calendar

Location

All courses are conducted at the
Melb PC/Hewlett-Packard Training Centre,
66 Albert Road, South Melbourne.
6.30–9.30 p.m, unless noted otherwise.

Application/Multi-session Courses

Lotus 1-2-3 for Beginners

LOT2, Tue 22 Feb 94, 4 sessions $195

Content: Introduction to spreadsheets, WYSIWYG, input of data labels and formulas, cell manipulation and management of worksheet files and their appearance.

WordPerfect for Beginners

WPF1, Tue 7 Sep 93, 4 Sessions $195
WPF2, Tue 8 Mar 94, 4 Sessions $195

Content: Presumes no word processing experience. Participants will be shown how to prepare, format, save, and print documents as well as set WordPerfect defaults for individual requirements.

Quicken for Beginners

QKN1, Tue 5 Oct 93, 4 sessions $195
QKN2, Tue 12 Apr 94, 4 sessions $195

Content: Introduction to basics of Quicken and bookkeeping.

Paradox for Beginners

PDX1, Tue 9 Nov 93, 4 sessions $195
PDX2, Tue 10 May 94, 4 sessions $195

Content: Database concepts, setting up and running Paradox.

Ventura for Beginners

VEN1, Tue 4 Nov 93, 6 sessions $280

Content: A course introducing the well-known desktop publishing package Ventura Publisher.

Microsoft Windows for Beginners

WIN2, Thu 3 Feb 94, 4 sessions $195

Content: Why Windows? The Windows interface, icons, mouse, pull-down menus, viewing files, housekeeping, copying and pasting between Windows. Exercises in using Windows applications: clock, control, calculator, etc.

Turbo Pascal for Beginners

TP1, Thu 9 Sep 93, 4 sessions $195
TP2, Thu 24 Mar 94, 4 sessions $195

Content: Structured programming basics using Turbo Pascal.

Notes

Each course has a code, times and starting (or only) date, and cost. Also,

Beginners = Little or no experience of the subject.
Intermediate = Basic experience.
Advanced = Familiar with the subject.
General = No specific level of experience required.

There is little point in selecting a course designed for those with a level of knowledge above your own. If in doubt contact the office or Tom Coleman.

To enrol: mark the course code(s) on the form on the back of your mailer, and send it with the appropriate payment to the office. You will be advised when your enrolment is accepted and the course is proceeding.

GWBasic for Beginners

GWB1, Thu 7 Oct 93, 4 sessions $150
GWB2, Thu 7 Apr 94, 4 sessions $150

Content: Introduction to the BASIC language. Participants are encouraged to move on to QBASIC and QUICKBASIC.

Starting Computing (Beginners)

STC2, Mon 6 Sep 93, 5 sessions $150
STC3, Mon 1 Nov 93, 5 sessions $150
STC4, Mon 28 Feb 94, 5 sessions $150
STC5, Mon 7 Jun 94, 5 sessions $150

Content: Getting started, first principles, tips and techniques, jargon.

DOS: Command Line Computing (Intermediate)

DOS2, Fri 29 Oct 93 . . . . $150
DOS3, Thu 2 Jun 94 . . . . $150

Content: DOS commands, batch files, setup, utilities, tips and tricks.

Weekend Workshops

10 a.m.– 4 p.m. Saturday/Sunday
unless otherwise specified.

Diagnostics (General)

CDIA1, 19–20 Feb 94, 2 days $75

Content: Making sense of error messages. Where and how to look for problems. Testing setup.

Disaster Recovery (General)

DIS1, 4–5 Sep 93, 2 days $75
DIS2, 16–17 Apr 94, 2 days $75

Content: Backup philosophy. Preparing for and coping with the worst.

Seamist Weekend Workshop

SEA1, 6–7 Nov 93, 2 days . . . . * $100

Content: Our annual live-in bash. Bring your own PC and we will sort out your problems. Book early.
* Cost includes lunch Sat and Sun. Accommodation and other meals extra.

Communications (General)

COM1, 25 Sep 93 *, One-day course $40
*** NOTE: change of date**
COM2, 5 Apr 94, One-day course $40

Content: Modem setup. Comms software, BBS, offline readers, problem solving.

One-night Short Courses

How to Buy a Computer (Beginners)

HBC3, Wed 20 Oct 93 . . . . $30
HBC4, Wed 26 Jan 94 . . . . $30
HBC5, Wed 27 Apr 94 . . . . $30

Content: What it does, what the jargon means, buying advice, tips, and traps. No sales talk!

Hard Disks (General)

HD1, Wed 10 Nov 93 . . . . $30
HD2, Wed 25 May 94 . . . . $30

Content: How they work, how to install, and setup problems.

Backing Up (General)

BAK2, Wed 7 Dec 93 . . . . $30

Content: Risk assessment. Backup systems and methods.

Viruses (General)

VIR2, Wed 13 Oct 93 . . . . $45
VIR3, Wed 23 Feb 94 . . . . $30

Content: Detection, removal, and protection.

How It Works (General)

HIW1, Wed 24 Nov 93 . . . . $30
HIW2, Wed 11 May 94 . . . . $30

Content: Simple, non-technical introduction to the inner workings of a computer.

Decompressing Files (General)

DEC2, Wed 17 Nov 93 . . . . $30
DEC3, Wed 16 Feb 94 . . . . $30
DEC4, Wed 18 May 94 . . . . $30

Content: Using file compression/decompression utilities. Basics of decompressing BBS and Software Library files. Using LHARC, PKUNZIP, etc.

Using Diagnostic Software (General)

DIAG1, Wed 8 Sep 93 . . . . $30
DIAG2, Wed 16 Mar 94 . . . . $30

Content: Investigating setup and inner workings of your computer with a view to troubleshooting and optimising.

Memory Configuration (General)

MEM2, Wed 19 Jan 94 . . . . $30

Content: What the jargon means. Getting best use from memory. Setting up CONFIG and AUTOEXEC. Utilities.

Printer Setup (General)

PRN1, Wed 22 Sep 93 . . . . $30
PRN2, Wed 30 Mar 94 . . . . $30

Content: Background, control codes, drivers, troubleshooting.

Norton Utilities

NOR2, Wed 16 Sep 93 . . . . $30
NOR3, Wed 15 Dec 93 . . . . $30
NOR4, Wed 23 Mar 94 . . . . $30

Content: Installation and setup, principal features, techniques.

Introduction to Windows (Beginners)

INW2, Wed 15 Sep 93 . . . . $45
INW3, Wed 8 Dec 93 . . . . $45
INW4, Wed 2 Mar 94 . . . . $45

Content: Principal features, techniques, setup, optimising.

Introduction to Melb PC BBS

BBS2, Mon 25 Oct 93 . . . . $30
BBS3, Tue 1 Mar 94 . . . . $30
BBS4, Tue 7 Jul 94 . . . . $30

Content: Software and hardware setup, access, file areas, offline readers. ❑

Training

by Tom Coleman

Please note that the Comms workshop scheduled for Saturday 2 October has been brought forward a week and will now run on Saturday 25 September instead.

By the time you read this our first Training Think Tank instructor get together will be over. Ask me how it went.

If you missed this inaugural meeting the next meeting will be on Friday 24 September. That's if the forthcoming Starting Computing course does not overfill and we have to use that night for a class. Check with the office. The alternate date is Saturday 18 September.

After that, who knows? The participants in this new training get-together will be in charge of their own destiny. They can decide where and when they meet.

Not that I am backing off. Far from it. I have plenty of ideas for the next few years. I just think that a group of this size deserves a bit better than Tom Coleman's Ragtime Computer Show. Getting more people involved is a good start.

This will be the chance for those who know their subject, but don't know how to teach, to become involved. It is intended to make one of the features of these monthly get-togethers an ongoing Train the Trainer. We have some pretty good trainers in Melb PC and we intend to pick their brains.

Last month we flew a kite about some subjects that we were considering scheduling. Looks like there is enough interest in some. This means that there will be some additions to the training calendar soon. Watch this space.

Dont forget that there is a Disaster Recovery workshop on Saturday and Sunday 4–5 of September. Panic Disks and diagnostic software are pretty central to this subject. Want to know more? Be there. Don't wait until all hell breaks loose. Develop a little paranoia and pray that nothing happens between now and the September 4.

There is a Starting Computing beginning Monday 1 September. As this course is the first of its kind after PC93 it is likely to overfill. This is our computer literacy course for those who are just coming into computing or feel that being self-taught leaves gaps in what you know. It is even for those of you who have been running the same program for ages and have no idea of what to do outside of it.

I am still looking for some one to give me a hand to set out some training brochures. Pretty low-key Desktop Publishing. Any one interested? ❑

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Authors receive no payment for their work, although a voucher for one or two disks from our public domain library is awarded in most cases. Queries regarding these disks should be directed to the Group's Office. Unless specifically requested otherwise, all articles are made available to other PC User Groups for reprinting.

Authors must present a balanced view of the subject matter, based on a reasonable period of use— if the article is overly critical they should submit a copy to the distributors or manufacturers for comment. Copies of such correspondence should accompany the submission. Before starting a long article, please write to the editor, in case someone else has beaten you to it. **The author's name must appear in the first paragraph of the text.** A contact phone number will help subeditors and readers to contact the author. Anonymous submissions are not accepted.

Graphics: Please supply screen shots wherever possible in colour, or black and white images, saved in one of these formats: BMP, IMG, PCX, TIF, or EPS.

Upload articles via modem as a file using the "P"command on the Files BBS, and leave a message (not "Private") for "Peter Smith" or "Ash Nallawalla". Alternatively, send articles on any convenient **virus-free** diskette (5.25 inch or 3.5 inch—which will not be returned) in ASCII format (unless unavoidable) with no formatting whatsoever to the Group's PO Box.

Viruses: Articles provided on virus-infected diskettes will be totally ignored!

Rejections: Please contact the Editor if your submission is not published within four issues. Rejections are always advised by telephone or in writing. ❑

Advertisements from Members, for Wanted, Buy, Sell, etc. are run free of charge.

The editorial team will type clearly handwritten advertisments not exceeding 50 words.

All other ads must be supplied as an ASCII file on a ***virus-free*** non-returnable MS DOS diskette (360 kB/1.2 MB 5.25-inch or 720 kB/ 1.44 MB 3.5-inch). (Infected disks are thrown out, with no attempt to disinfect or recover data!)

All members' ads **must be delivered to the Group's Office** and will be included in the first available issue of *PC Update*.

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- Dymocks
  Shop 209, Westfield Shopping Town, Doncaster Rd, Doncaster.
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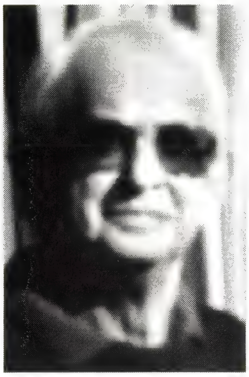
Beginners' Bytes—Part 1

by Ron Wilby



Beginners' Bytes is a new feature this month, not to be confused with the Beginner's Tale (opposite). The idea is to return to the very basics of computer operation, last covered by the early episodes of "A Beginner's Tale" almost a year ago. Would you like any particular topic covered here? If so, phone or fax me on (03) 873 3624.

Starting Up

To get your computer into action, you must first "Boot" it, after turning on the power.

Most of you will have your computer set up so that it "boots" after you switch on. You may not even know what is happening, just that various miscellaneous pieces of information are seen on the screen, accompanied by some beeping and scraping from the computer. You can't read what's on the screen because it "scrolls" off the screen too quickly. The end result of all this will be a "menu" from which you can select the next action you want. This will usually be the selection of the program you want to run, then pressing the "Enter" key loads the program so you can start work. Loading means copying the program files from a disk into memory.

How It Really Works

Behind all this startup activity there is at work an "operating system." The operating system provides the interface between you and your computer. It executes the commands you enter from the keyboard and manages the system resources including the peripherals such as monitor, printer, mouse etc.

The System we (nearly) all use is called DOS. This stands for **D**isk **O**perating **S**ystem, and it allows you to run other programs, called Application Programs, such as word processors, databases and spreadsheets. What are they? We'll go into that later.

Often, though, you are not in contact with DOS because it hides behind a secondary program that takes control of the computer soon after startup. This program is known as a "Shell" and commands are issued from a screen, called a menu, on which several alternatives are displayed for you to select.

Even if you have a shell, I strongly recommend you get behind it and learn a little about the basics of your operating system. To make best use of your computer you need to be an adequate DOS user (which doesn't mean an expert).

BIOS

When switched off the computer is **dead**. There is nothing in memory. DOS is hanging about somewhere on hard or floppy disk but is powerless. Before the operating system can operate, we need something to start the whole thing, something to breathe life into this **dead computer**. This something is called the BIOS (stands for **B**asic **I**nput **O**utput **S**ystem) and is built into the computer when you buy it. No BIOS, no go! When you switch on the power your BIOS is ready and waiting and performs POST (**P**ower **O**n **S**elf **T**est). This is the beeping and scraping bit mentioned above. POST checks that your hardware is in working condition, and you will see on screen messages from the BIOS in the first half-minute or so after power on.

Booting

After the POST routine (about half a minute) the BIOS hands over control to DOS. At this point you need a "System Disk," either a floppy, which must be in drive A, or your hard disk.

Capital letters like A, B, C etc are the names of your disk drives. DOS recognises these letters as drive names when they have a colon after them, as A:, C: etc. Your first floppy disk drive is always A:, your hard disk C:. If you have a second floppy drive it will be B: and more hard disks (or partitions) are possible.

DOS looks at drive A first. If there is a system disk there, then that disk is used for startup. When drive A contains disk without the System files, you get an "error message" telling you it's a "non-system disk, replace and try again" or words to that effect. If there is no disk in drive A (or the door is open) DOS moves on to drive C, your hard disk. Most PCs start from drive C, but be aware that if there is a disk left in drive A, DOS will try to use that first and your computer may fail to start.

When DOS has found a system disk it proceeds to "boot" your computer, which means that DOS looks at a file called CONFIG.SYS for information about how you want your computer configured. DOS also looks at a file called AUTOEXEC.BAT to find which of the various DOS programs are to be "loaded" into memory after which the computer is ready and willing to accept your commands. Later I'll show you how to modify CONFIG.SYS and AUTOEXEC.BAT, but for now you should see on screen the DOS prompt, which will be A:\ or C:\ followed by a blinking line. This line is DOS saying to you "type your command here, Master." If, instead of the DOS prompt, you have a menu on screen, there will be some command to take you from the menu to the prompt. For DOS 5 type Alt + F4.

What we are going to do now is to examine some basics of computer operation. You'd be surprised how many people perform miracles with wordprocessor or spreadsheet but have no idea how to copy a file. At this stage you should have an emergency "Start Up" disk, which is basically a floppy disk formatted as a "System" disk. **Never** use your original DOS disks, use the DISKCOPY command to make copies and use them. To make the startup disk you get the DOS prompt on screen as described above, put a new floppy disk in Drive A and at the prompt type FORMAT A:/S. Making a complete startup disk requires some file copying, and I am about to tell you how to do that in next month's episode.

Meanwhile, to get the DOS prompt, put your startup disk in drive A, press Ctrl, Alt and Del all together. This will reboot your computer giving you the required DOS prompt on screen. Keep this startup disk, you may need it in an emergency (see this month's episode of The Beginner's Tale).

I'll be back next month. . . . ❑

Member's Free Ad

For Sale:

Roland SCC1 sound board, excellent condition, MPU-401 compatible $350.00 comes complete with dual software and manual.

Motherboard 286 12 MHz $50.00

call David or Isabel McRae, (03) 598 4126

A Beginner's Tale—Part 10

by Ron Wilby

Last month's Editorial contained an impassioned plea by Ash Nallawalla for people to help with the writing of Beginners' material. Not impassioned enough, Ash, my phone has been totally silent, and besides you don't even publish my picture anymore.

My phone/fax number for any contributions or any reader requiring some help is (03) 873 3624.

Thanks to Graeme Triggs and John Button for their assistance with material which has helped create this month's Beginner's Tale.

Ron In the Horrors

Let me tell you of my recent computer "horrors." Suddenly I lost my prompt. Nothing on screen except a little blinking line (white). Entering commands from the keyboard produced nothing, except that the little line moved across the screen.

My AUTOEXEC.BAT file contained a command like

```
PROMPT=$e[32;40m$p$g
```

Refer to the end of last month's episode, where you will see something like that.

This gave me green letters on a black background
[I change the numerals sometimes to alter the colours and reduce boredom on long typing jobs].

So where did my prompt go? I tried everything. Booting from my "disaster floppy" (with a different AUTOEXEC.BAT) was successful, and enabled me to alter the prompt command to `PROMPT=$p$g` which put me back in working order, but I wanted my "colour control" prompt back. I tried replacing ANSI.SYS, then COMMAND.COM. I took ANSI.SYS out of high memory into conventional. I deleted ANSI.SYS. No result, still no prompt.

Desperate, I went to the New Users East SIG. Anyone know what's wrong? Thanks to Doug Brooke and Graham Paul, we now know that Murphy(?) had set the figures to give **black** characters on a **black** background, hence nothing visible. Was my face red?

More Horrors for Ron

A few days ago I was mucking about with my word processor (WordStar) and somehow changed the colours to the original default values, which I think are awful. At this point I should have used my backup to restore my previous colour choices. Stupidly, I started changing the colours. Some days went by, the backup was overwritten, and would you believe I've never got the colours back to where they were before I mucked up everything. Fools rush in!

Frustration

A couple of weeks back I had a housekeeping session, moving, renaming and copying files to floppies. After copying, the files were returned to their original names. I work a lot with files of 300 kB, and noticed CHKDSK was showing an alarming decrease in free hard disk space. As my hard disk is too small anyway I had to do something. Examination of file sizes showed a "hidden" directory called SENTRY, which was part of PC Tools. This directory had suddenly grown by 6 MB, which was more than I could allow. What Sentry contained was information to make undeletion of accidentally-deleted files more foolproof. "Foolproof?," with me around??

Would you believe (no, you wouldn't), I had to "Uninstall" PC Tools to delete those files. Having done that I decided to see what the newly-arrived DOS 6 could do.

DOS 6 In Action

A quick look through the Manual (if you ignore that dreadful cover) is encouraging. You get virus protection, a defragmenter, a better Backup and Restore facility and a better Memory Manager. So let's go. The installation was nice, simple and quick, and it picked up all my program-starting batch files (see last month) and gave me a nice menu, all without any effort on my part.

The New Features

MEMMAKER

After installing DOS 6, I tried the new memory-optimisation program, MEMMAKER. This program goes automatically through the way you are currently using memory and then takes appropriate action to adjust your memory configuration to make the best use of whatever you have. MEMMAKER quickly moved device drivers etc. around, putting some of them down into conventional (640 kB) memory from where I previously had them in upper memory. There is now a whole 45 kB of Upper Memory left free, which could be useful in the future. I thought it strange that some items were moved **down** from Upper Memory, but MEMMAKER did make available an extra 2 kB of conventional memory, so I was happy.

BACKUP

Next I tried making a Backup. The program promptly informed me I would need **twenty-nine** floppies and it would take 16 minutes without verification, considerably longer if I set Verify on. This was too much for me, as my PC Tools CP Backup took only 14 disks and 18 minutes with Verify on.

MSAV (Microsoft Anti-Virus).

To try the virus protection, I put the command MSAV/P in my autoexec.bat file. My comment is that although the anti-virus feature seems good, it is very very slow. Also, there are some reports about problems with MSAV. See Dr Don's Virus Clinic, PC Update, August 1993. Back to McAfee's Scan?

Defragmenting

I tried the De-fragmenting Utility. It is very quick, but on one trial left my hard disk very fragmented and it took my ancient Unfrag Utility 9 minutes to correct it all. However, on another trial run, DOS 6's DEFRAG did better than UNFRAG. It seems that neither DEFRAG nor UNFRAG is perfect, but even so, DEFRAG is fast and a defragmenter (optimiser) is a necessity for all of us.

UNDELETE and HELP

Two excellent features of DOS 6. The UNDELETE facility is much improved and the on-line HELP is great. All you need do is type HELP at the prompt followed by the appropriate filename. For example, if you are mystified about the DELTREE command, simply type HELP DELTREE at the prompt. I just did this from within my wordprocessor, and got more than two screens of information about DELTREE. This HELP facilityis the reason why the Version 6 Manual is so much smaller than the one with Version 5.

What Is DELTREE?

It's a beauty! If you've ever tried deleting a program stored in a number of subdirectories, you would appreciate it. Instead of having to first empty each directory and then delete it, as DOS 5 users do, one command will delete all files and subdirectories from a specified point. If you mess it up, the new UNDELETE will get it all back for you. ❑

Winning with Windows

by Fritz Lang

In this regular column, a number of basic Windows topics are explained in simple terms.

Speeding up Windows: SMARTDRV.EXE

A common complaint by Windows users relates to the time it takes to load Windows, and how sluggish the response is while working inside Windows.

The complaint is justified.

To deal with it, Microsoft designed SMARTDRV, a disk cache. Like all disk caches, SMARTDRV works by reading more information from the disk in one hit than an application actually asks for, and caching the extra data away. If it turns out that the additional data is not required, it is discarded. It is a bit like fetching water from the creek while camping. Getting two buckets rather than one can save a fair amount of effort and time (but then again, who needs to save time while camping...). If you don't need the extra water, tip it out. Little effort is lost. Sometimes you can tell that a disk caching program is installed. If your hard disk murmurs happily even though are not doing anything in particular, then SMARTDRV is probably caching away some data in preparation for the next rush job. It might also be writing a few kilobytes to disk that it did not get around to writing a few seconds ago.

Of course you can install a disk cache other than SMARTDRV if you so desire. While SMARTDRV is fairly good, it is not the best or most versatile cache.

Normally, the Windows installation procedure looks after all the installation details. If, for some reason, you need to install it later, here is how it's done:

In CONFIG.SYS, insert the line

```
DEVICE=C:\DOS6\SMARTDRV.EXE /DOUBLE-BUFFER
```

In AUTOEXEC.BAT, insert the line

```
C:\DOS6\SMARTDRV
```

Reboot your PC, and issue the command SMARTDRV /S from the DOS prompt. You will get a table like this:

```
Microsoft SMARTDrive Disk Cache version 4.1

Room for 64 elements of 8,192 bytes each
There have been 15,735 cache hits and 7,087
cache misses

Cache size: 1,048,576 bytes
Cache size while running Windows: 524,288
bytes

              Disk Caching Status
drive    read cache    write cache    buffering
-----------------------------------------------
A:         yes            no             no
B:         yes            no             no
C:         yes            yes            no
D:         yes            yes            yes
E:         yes            yes            yes
F:         yes            yes            -
```

Note the entries in the column "buffering". If you have any dashes or "yes"s in this column, leave the SMARTDRV.EXE entry in CONFIG.SYS as it is. If you have just "no"s, then you don't need double buffering. Remove the SMARTDRV.EXE entry from CONFIG.SYS.

SMARTDRV comes with quite a few options. Enter SMARTDRV /? to find out what they are. Some people like to turn on write-caching for floppy disk drives, using the command SMARTDRV A+. This allows them to write files to floppy disk very rapidly and do something else with the keyboard while the cache is dumping the data. Just make sure to leave the disk in the drive until SMARTDRV has finished writing all the data... Personally I don't like this option much. In spite of the word "smart" in its name, SMARTDRV seems incapable of processing keyboard input at an adequate speed while writing cache data to floppy disk.

The TEMP Directory

Some people need doodle pads while they talk on the phone. Many Windows applications need temporary files to do their job. They always seem to have an extension of .TMP. To help you manage these files, Windows sets up a temporary directory. It is often set to C:\DOS. When you issue the DOS command SET, you will see its value on your machine. Just watch out for the entry TEMP=....

The selection of C:\DOS as a temporary directory is a silly idea. Windows is not particularly stable and will crash once every so often. Each time it crashes, it may leave one or several temporary files behind. Eventually they clog up the directory nominated by the TEMP variable. The result is a very slow machine, perhaps a machine that refuses to work under Windows. The DOSSHELL under DOS 5 and DOS 6, by the way, does the same thing, and worse.

A much better idea is to create a special TEMP directory, e.g. C:\WINDOWS\TEMP. To further improve on this idea, you should routinely delete all temporary files that might have collected in the TEMP directory. They are quite useless anyway once the application has finished. All this can be done automatically in AUTOEXEC.BAT. Locate the line SET TEMP=..., and replace it with the following two lines:

```
SET TEMP=C:\WINDOWS\TEMP
IF EXIST %TEMP%\*.TMP DEL %TEMP%\*.TMP
```

To avoid unnecessary error messages in case there are no files to be deleted, we first test for the existence of temporary files. The DEL command is only issued if some .TMP files can be found.

Do not forget to manually create the temporary directory:

```
MD C:\WINDOWS\TEMP
```

Still on the subject of temporary files: Some of these files are so temporary that they never even rate an entry into the DOS directory table. DOS refers to them as "lost clusters". They are invisible but can use up a lot of valuable disk space. Once in a while, you should give your disk a spring cleaning. Terminate Windows and issue the command CHKDSK /F. If DOS finds any lost clusters, it will report them and ask you if you want them turned into files. Say no— they are perfectly useless. DOS will now delete them and free up the disk space they used.

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Real Men Don't Use UNIX, Either

by Peter Manins

In a remark calculated to put me in my place, I was told recently that "Real Men use UNIX". Well, that reminded me of a note posted to a US bulletin board and printed in the Micom Newsletter of December 1985. I sought it out and here it is, for you to enjoy too.

A recent article devoted to the **macho** side of programming ("Real Programmers Don't Use Pascal", by ucbvax!G:tut) made the bald and unvarnished statement :

Real Programmers write in Fortran.

Maybe they do now, in this decadent era of Lite beer, hand calculators and "user-friendly" software, but back in the Good Old Days, when the term "software" sounded funny and Real Computers were made out of drums and vacuum tubes, Real Programmers wrote in machine code. Not Fortran. [Not C++.] Not, even, assembly language. Machine code. Raw, unadorned, inscrutable, hexadecimal numbers. Directly.

Lest a whole new generation of programmers grow up in ignorance of this glorious past, I feel duty-bound to describe, as best I can through the generation gap, how a Real Programmer wrote code. I'll call him Mel, because that was his name.

I first met Mel when I went to work for Royal McBee Computer Corp., a now-defunct subsidiary of the typewriter company. The firm manufactured the LGP-30, a small, cheap (by the standards of the day) drum-memory computer, and had just started to manufacture the RPC-4000, a much-improved, bigger, better, faster, ... drum-memory computer. Cores cost too much, and weren't here to stay anyway. (That's why you haven't heard of the company, or the computer.)

I had been hired to write a Fortran compiler for this new marvel and Mel was my guide to its wonders. Mel didn't approve of compilers.

"If a program can't rewrite its own code", he asked, "what good is it?"

Mel had written, in hexadecimal, the most popular computer program the company owned. It ran on the LGP-30 and played blackjack with potential customers at computer shows. Its effect was always dramatic. The LGP-30 booth was packed at every show, and the IBM salesmen stood around talking to each other. Whether or not this actually sold computers was a question we never discussed.

Mel's job was to re-write the blackjack program for the RPC-4000. (Port? What does that mean?) The new computer had a one-plus-one address scheme, in which each machine instruction, in addition to the operation code and the address of the needed operand, had a second address that indicated where, on the revolving drum, the next instruction was located. In modern parlance, every single instruction was followed by a GOTO! Put that in Pascal's pipe and smoke it.

Mel loved the RPC-4000 because he could optimise his code: that is, locate instructions on the drum so that just as one finished its job, the next would be just arriving at the "read head" and be available for immediate execution. There was a program to do that job, an "optimising assembler", but Mel refused to use it.

"You never know where its going to put things", he explained, "so you'd have to use separate constants."

It was a long time before I understood that remark. Since Mel knew the numerical value of every operation code, and assigned his own drum addresses, every instruction he wrote could also be considered a numerical constant. He could pick up an earlier "add" instruction, say, and multiply by it, if it had the right numeric value. His code was not easy for someone else to modify.

I compared Mel's hand-optimised programs with the same code massaged by the optimising assembly program, and Mel's always ran faster. That was because the "top-down" method of program design hadn't been invented yet, and Mel wouldn't have used it anyway. He wrote the innermost parts of his program loops first, so they would get first choice of the optimum address locations on the drum. The optimising assembler wasn't smart enough to do it that way.

Mel never wrote time-delay loops, either, even when the baulky Flexowriter required a delay between output characters to work right. He just located instructions on the drum so each successive one was just past the read head when it was needed; the drum had to execute another complete revolution to find the next instruction. He coined an unforgettable term for this procedure. Although "optimum" is an absolute term, like "unique", it has become common verbal practice to make it relative: "not quite optimum" or "less optimum" or "not very optimum". Mel called the maximum time-delay locations the "most pessimum".

After he finished the blackjack program and got it to run, ("Even the initialiser is optimised", he said proudly) he got a Change Request from the sales department. The program used an elegant (optimised) random number generator to shuffle the "cards" and deal from the "deck", and some of the salesmen felt it was too fair, since sometimes the customers lost. They wanted Mel to modify the program so, at the setting of a sense switch on the console, they could change the odds and let the customer win.

Mel baulked. He felt this was patently dishonest, which it was, and that it impinged on his personal integrity as a programmer, which it did, so he refused to do it. The Head Salesman talked to Mel, as did the Big Boss and, at the boss's urging, a few Fellow Programmers did too. Mel finally gave in and wrote the code, but he got the test backwards and, when the sense switch was turned on, the program would cheat, winning every time. Mel was delighted with this, claiming his subconscious was uncontrollably ethical, and adamantly refused to fix it.

After Mel had left the company for greener pa$ture$, the Big Boss asked me to look at the code and see if I could find the test and reverse it. Somewhat reluctantly, I agreed to look. Tracking Mel's code was a real adventure.

I have often felt that programming is an art form, whose real value can only be appreciated by another versed in the same arcane art; there are lovely

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gems and brilliant coups hidden from human view and admiration, sometimes forever, by the very nature of the process. You can learn a lot about an individual just by reading through his code, even in hexadecimal. Mel was, I think, an unsung genius.

Perhaps my greatest shock came when I found an innocent loop that had no test in it. No test. **None.** Common sense said it had to be a closed loop, where the program would circle, forever, endlessly. Program control passed right through it, however, and safely out the other side. It took me two weeks to figure it out.

The RPC-4000 computer had a really modern facility called an index register. It allowed the programmer to write a program loop that used an indexed instruction inside; each time through, the number in the index register was added to the address of the instruction, so it would refer to the next datum in a series. Mel never used it.

Instead, he would pull the instruction into a machine register, add one to its address, and store it back. He would then execute the modified instruction right from the register. The loop was written so this additional instruction time was taken into account—just as this instruction finished, the next one was right under the drum's head, ready to go. But the loop had no test in it.

The vital clue came when I noticed the index register bit, the bit that lay between the address and the operation code in the instruction word, was turned on—yet Mel never used the index register, leaving it zero all the time. When the light went on it nearly blinded me.

He had located the data he was working on near the top of memory—the largest locations the instructions could address—so, after the last datum was handled, incrementing the instruction address would make it overflow. The carry would add one to the operation code, changing it to the next one in the instruction set: a jump instruction. Sure enough, the next program instruction was in address location zero, and the program went happily on its way.

I haven't kept in touch with Mel, so I don't know if he ever gave in to the flood of change that has washed over programming techniques since those long-gone days. I like to think he didn't. In any event, I was impressed enough that I quit looking for the offending test, telling the Big Boss I couldn't find it. He didn't seem surprised. When I left the company, the blackjack program would still cheat if you turned on the right sense switch, and I think that's how it should be. I didn't feel comfortable hacking up the code from a Real Programmer. ❑

Homophonomania

(Adapted from an article by Jack Smith, in the *Los Angeles Times*.)

I have a spelling chequer,
It came with my PC.
It plainly marques four my revue
Mistakes eye cannot sea.
I've past this poem threw it,
I'm shore yore pleas too no.
It's letter perfect in its weigh,
Mi chequer tolled me sew.

Department of Thoroughly Useless Software, Inc.

by Robin A. Clark

There must be something about a US programmer's diet (6-pack of Pepsi or Jolt, and a case of Snickers Bars) that inspires late night lunacy for no good reason, because one thing computers have never lacked is trick software. Take Hostile for example, a program from a few years ago that makes your DOS talk back to you and generally refuses to do anything you tell it to do. Or a program that made the characters on the screen fall off, one by one (try to do word processing with your words crumbling as you type). Or the program that drained the water out of your disk drives, or the one that washed the inside of your screen. (Some people say DOS itself is a joke, but that's a subject for some other day.) And now it seems that Windows programmers have been consuming the Jolt at alarming rates...

The latest find in the Windows world of Drive-Your-Friends-Crazy software is Icon Fright, a program that gives your Windows icons cursor phobia and sends them running away every time you approach them with the mouse. Run Icon Fright on your computer and have fun trying to catch the little icons as they run away. Run Icon Fright on your friends' computers and stand by to laugh as they madly attempt to click on icons that just won't stay put. Run Icon Fright on a programmer's computer after he's been up all night consuming Jolt Cola and Snickers, then watch as they cart him away, gibbering. (I don't include female programmers here—we're made of heartier stuff, and tend to consume less Jolt.) Keep a copy of Icon Fright around for those special occasions when just-plain-Windows is just not enough.

If you don't relish the thought of giving your friends nervous breakdowns, then there's another program you might want to keep around—Ralph. Ralph's eyes sit at the bottom of your screen (or wherever you put him, unless you're also running Icon Fright) and follow the mouse cursor around. Let the mouse sit still for too long, and Ralph blinks, then falls asleep. Move Ralph's icon and he winks at you. It's kind of like having a pet, without having to clean up after it. Yes, folks, they're fun and they're free. And they're thoroughly useless. ❑

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A Path for Beginners

by Tom Coleman

Lately I have come across a number of horrendous PATH statements. Let's take a look at one.

```
PATH=C:\;C:\DOS;C:\WP51;
    C:\TEMP;C:\NORTON;C:\UTIL;
    C:\QUICKEN;C:\GAMES;
    C:\PARADOX;C:\WINDOWS;
    C:\WINDOWS\BIN;
    C:\GAMES\GAMES;
    C:\XTREE;C:\TELIX
```

Does yours look anything like that? First, let's look at where PATH fits into the overall scheme of things and then take a look at what is wrong with this particular one, and many other PATH statements I see from time to time.

When you enter something on the command line (that is, at the DOS prompt), for example:

```
XCOPY   *.*   A:\   /M
```

DOS looks at the whole line and gives each part between separators (in this case, as in most, the separators are spaces) a number starting at 0. In order that it can identify what the numbers mean it puts a "%" in front of each number. Nothing to do with percentages, just an identifier.

Thus, "%1" is the "*.*" and "%2" is "A:\". We can use the "%" identifier in batch files, but that is outside the scope of this discussion. The bit we are interested in is %0, the first item on the command line.

How about we take a brief pause here and all repeat after me

> **The first thing on the command line is a command.**

Now off you go for five minutes meditation on this simple mantra.

Doubtless you will have been enlightened if you followed the above instructions. You will now realise that "Bad Command or Filename" means there was something wrong with the first thing on the command line when you pressed the <Enter> key.

This raises the question, how did DOS know there was something wrong? The simplest answer is to follow DOS through as it tries to execute a command.

For the purposes of illustration we will enter a meaningless command. You can try it if you like.

I am going to enter the command, QQQ, which is pure garbage on my computer. DOS dutifully scans the line, takes the first thing on it (QQQ), and tries to execute it.

First it looks in the environment to see if it matches any of the variables in there. The environment is a bit of conventional RAM (memory). It's part of your 640 kB, that holds a number of variables like PROMPT, COMSPEC, PATH, TEMP, and so on.

Failing to find QQQ there, DOS now takes a look in a bit of memory used by DOSKEY if you have it loaded. If it is a DOSKEY variable then it gets interpreted and executed. I don't have one called QQQ.

Now DOS takes a look at the current directory. You know, all the files that get listed when you type DIR. It looks first of all for a file named QQQ.COM. Failing to find it, DOS then goes looking for a file in the current directory named QQQ.EXE. Still no joy, so it has another look, this time for a file named QQQ.BAT.

Everybody stop. Now read that last paragraph again. Look at what has happened. DOS looked first for a .COM file, then for an .EXE file, and finally for a .BAT file. **Most important**.

Suppose I had files named QQQ.EXE and QQQ.BAT in the current directory and, to make life difficult, I wanted to execute the file, QQQ.BAT. It can't be done. QQQ.EXE is found first and then DOS stops looking.

Aha, you say, how about we put QQQ.BAT on the command line. Shouldn't that find it? Sorry. When DOS looks at the command line it sees the dot and tosses it out along with everything that follows it up to the next separator. In other words, the dot and extension are dumped before anything else happens.

What this means is that putting a file extension in the command is always a waste of time and is bad technique.

Having looked for the QQQ in the current directory and not found it DOS now goes looking for other places to search. Those other places to search are contained in the PATH statement.

If you examine the PATH statement at the beginning of this article you will see it consists of a list of directories separated by semicolons. DOS searches every item on the list of directories for, first, a COM file, then an EXE file, and then a BAT file. In our case, one called QQQ.

Finally, when it has exhausted the list of directories in the PATH, DOS displays the message "Bad Command or Filename", and starts sulking. Even without having the latest versions of software, there is likely to be well over 10 MB of files searched on each occasion you make a *typo*.

Remember, there are only two or three executable files in each directory and none are files you are likely to want at a moment's notice. Often when there are many directories, there is a good chance you will execute a file of the same name in an earlier directory.

I remember one class I was running when we all had a jolly time trying to bail out of installing *WordPerfect*—I had forgotten to tell the students to change to drive A: before entering INSTALL. Talk about a thieves' picnic. We ran a bit overtime that night.

The argument that you need to be able to get access to, say, your word processor, at any time, really does not hold up when balancing the penalties of having it in the PATH against the advantages of writing a batch file to do exactly the same thing.

All you can do from the command line is execute the word processor. If you want to move, say, the dictionary into a RAMDISK to speed things up, it must be done manually each time. It could be done in the same batch file that starts the word processor, as well as automatically copying a custom dictionary back to drive C: when you have finished. It guards against forgetting, too.

All you need is a special directory to hold all your batch files and put it in the PATH. That way you can always find it. Take all your application programs out of the PATH and write batch files to start them.

Another thing about that PATH statement. Why on earth is the root directory there? The only things you should have in the root directory are COMMAND.COM, CONFIG.SYS, and AUTOEXEC.BAT. You may have some bloody-minded program that insists on writing its log file to the root directory, but generally the root directory should be clean, bare, and bald.

So just what should be in your PATH statement? Think about it. You want the files that you need to be able to access at any time from anywhere. Your DOS files, so C:\DOS should be in the path. I have suggested a directory for your batch files, so C:\BAT would be appropriate.

Then there is a bundle of utilities like LIST, and MEM, WHEREIS, and a bucket of others that are handy to have around. Put them all in a UTIL directory and put C:\UTIL in the PATH.

That's it. You don't need anything else.

The only decision now is which order do you put them in. The rule is to put the most frequently used directory first and the least frequently use directory last. Exactly which is most and which is least is a reflection of how you choose to use a computer, and that is up to you. ❑

The Perfectionist

by Ray Beatty

Computers have taken over from crossword puzzles as the mental gymnastics to exercise the mind and while away the hours. But sometimes you come across a problem that no amount of wrestling will beat and you finally have to check the answer in the back of the book.

This happened to me the other day when nothing I tried would make my WordPerfect for Windows recognise the Adobe Fonts for my Hewlett-Packard DeskJet printer. I spent many nights stabbing at this problem, reading the manuals and instructions over and over but getting nowhere. Instead of the sack of lovely scalable fonts that were promised, all I got was a dozen fixed-size and boring Courier and Swiss.

Trouble was, this being my home computer, I never got to tackle the problem except after WordPerfect Pacific's help line closed up for the night.

Finally one Wednesday midnight I couldn't take it any more. "Hang the expense," I cried, and rang the Big Daddy help line in Utah.

When the very charming receptionist answered I told her I was calling from Australia. (This always gets a rapid response from American operators as they think you're calling from the dark side of the moon.) Sure enough within a minute I was talking to a clean-cut young adviser called James who stepped me through my problem.

It turned out that the fault was with the Windows .WRS printer driver, which lives in the \WPC subdirectory, which he got me to delete. Then when I selected the Hewlett-Packard again, the program rebuilt the .WRS driver and bingo! the page I was working on flowered with all these exotic fonts I had been struggling to summon.

David was most impressed to discover that he had solved my problem in the early hours of tomorrow morning, while over there they were still on their first cup of morning coffee (or whatever it is they drink on the shores of the great Salt Lake).

As I thanked him profusely I reflected on why WordPerfect has become the world's biggest-selling word processor: your problems are tackled politely, efficiently, and diligently. You don't pay special fees to belong to any club or to buy limited amounts of support for limited amounts of time. They don't even check whether you have an official copy of the program—I suppose they figure that if you start using WordPerfect seriously, before long you'll want your own latest version anyway. No, their support is just there, and it's the best you'll find at any price.

Mind you, if I had to phone Utah every time I had a problem I'd soon push Telecom into record profits in spite of the Optus attack so I'll save those occasions for something very special. I only wish Hewlett-Packard would emulate the software house—I've only had the printer for a few weeks and I've already learnt they're like most other computer companies: just shrug their shoulders and say that whatever problem I've got is someone else's fault. I wonder if they swap notes with some of the car mechanics I use...? ❑

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```
Conventional Memory:
  Name                Size in Decimal       Size in Hex
  MSDOS                 12128       ( 11.8K)      2F60
  HIMEM                  1072       (  1.0K)       430
  EMM386                 8400       (  8.2K)      20D0
  4DOS                    256       (  0.3K)       100
  KSTACK                 1280       (  1.3K)       500
  VSHIELD                 416       (  0.4K)       1A0
  FREE                    304       (  0.3K)       130
  FREE                 631280       (616.5K)     9A1F0
Total  FREE:           631584       (616.8K)
Upper Memory:
  Name                Size in Decimal       Size in Hex
  SYSTEM               131104       (128.0K)     20020
  4DOS                   3408       (  3.3K)       D50
  VSHIELD                3120       (  3.0K)       C30
  AMOUSE                12944       ( 12.6K)      3290
  SHFTLOCK                512       (  0.5K)       200
  PRMASTER               3472       (  3.4K)       D90
  ADDIT                  6448       (  6.3K)      1930
  ANSI                   4192       (  4.1K)      1060
  SMARTDRV              13712       ( 13.4K)      3590
  RAMDRIVE               1184       (  1.2K)       4A0
  SETVER                  432       (  0.4K)       1B0
  MIRROR                 6512       (  6.4K)      1970
  FREE                  28400       ( 27.7K)      6EF0
  FREE                  46368       ( 45.3K)      B520
Total  FREE:            74768       ( 73.0K)
Total bytes available (Conventional+Upper): 706352 (689.8K)
Largest executable program size:             631280 (616.5K)
Largest available upper memory block:         46368 ( 45.3K)
    655360 bytes total EMS memory
         0 bytes free EMS memory
   1048576 bytes total contiguous extended memory
         0 bytes available contiguous extended memory
         0 bytes available XMS memory
           MS-DOS resident in High Memory Area
```

Results of MEM /C with UMB_DRVR.SYS used:

```
Conventional Memory:
  Name                Size in Decimal       Size in Hex
  MSDOS                 12128       ( 11.8K)      2F60
  HIMEM                  1072       (  1.0K)       430
  4DOS                    256       (  0.3K)       100
  KSTACK                 1280       (  1.3K)       500
  VSHIELD                 416       (  0.4K)       1A0
  FREE                    304       (  0.3K)       130
  FREE                 639696       (624.7K)     9C2D0
Total  FREE:           640000       (625.0K)
Upper Memory:
  Name                Size in Decimal       Size in Hex
  SYSTEM               131296       (128.2K)     200E0
  4DOS                   3280       (  3.2K)       CD0
  VSHIELD                3120       (  3.0K)       C30
  AMOUSE                12944       ( 12.6K)      3290
  SHFTLOCK                512       (  0.5K)       200
  PRMASTER               3472       (  3.4K)       D90
  ADDIT                  6448       (  6.3K)      1930
  ANSI                   4192       (  4.1K)      1060
  RAMDRIVE               1184       (  1.2K)       4A0
  SETVER                  432       (  0.4K)       1B0
  MIRROR                 6512       (  6.4K)      1970
  FREE                  28336       ( 27.7K)      6EB0
  FREE                 125632       (122.7K)     1EAC0
Total  FREE:           153968       (150.4K)
Total bytes available (Conventional+Upper): 793968 (775.4K)
Largest executable program size:             639696 (624.7K)
Largest available upper memory block:        125632 (122.7K)
   1048576 bytes total contiguous extended memory
         0 bytes available contiguous extended memory
    233472 bytes available XMS memory
           MS-DOS resident in High Memory Area
```

Members' Letters

DOS5 Memory Enhancer

There are some critics of *PC Update* (I am led to believe) but I find enough pearls of wisdom there for me on a continuing basis that I must express my appreciation.

A wonderful gem by Greg Eden "A High Memory Enhancer for DOS 5" was published in March 93. I have taken a little time to get the file UMB_DR522.LZH from the BBS and snoop inside my 386SX clone to find quite easily the ID of my chipsets (VL 82C320 and 82C331). The .DOC files told me that I should use the CONFIG.SYS changes quoted by Greg, changing only the UMB_DRVR.SYS switch to /C=13. Of course I made sure I had a disaster recovery disk before rebooting and I had directed my MEM /C to a file UMBTEST1 first. I was amazed to discover the improvement above what I had thought was an optimized memory use.

The figures are:	Before	With UMB_DRVR.SYS
Total bytes available to programs	706352	793968
Largest executable program size	631280	639696
Largest upper memory block	46368	126632

The before and after results are opposite for reference. Note that I use 4DOS as my command processor which gives many features that Microsoft forgot years ago and still haven't included in DOS 6 and takes less memory into the bargain. It may be of interest to note that my old CONFIG.SYS file contained the line:

```
DEVICE=C:\DOS\EMM386.EXE 256 /FRAME=E000
       /RAM=B000-B7FF /RAM=C800-DFFF
```

and I never did get my ramdrive up to the specified 640 kB.

More gems please!

» ***Morrison Hoyle***

Service to Make You Smile

This is not an advertisement, but an appreciation of a job well done. Usually, we are very pleased and happy if the person we pay to do a job or service does the job well. We normally would say "thank you!". But sometimes, a "thank you" is not enough.

So, I am writing this letter of appreciation to let the world out there know that Graeme Bond of Bond Computer Solutions helped me out on a Sunday when my computer was suffering some sort of amnesia. He went out of his way after solving my problem and checked to see if my system was working as I wanted, a month after he had fixed it. At no extra cost or bill in my mailbox, too! Now that is what anyone can call "Service" with a capital S.

And to you, Graeme, if you have a boss, I wish this means not just a blue certificate of appreciation but a salary raise! You're tops!

» ***Isabel McRae***

The Manager's Guide to DOS

We thank Bob Burt for his generous review of The Manager's Guide to DOS in the August issue of *PC Update*.

He is quite right to say that the book is spoiled by a number of typographical errors, and for this we would like to do a little more than apologise.

The first print run was (fortunately) quite short, which enables us to correct the errors (and I would also like to thank Charles Knox of the Kaypro User Group of Victoria for making the same point by sending me a copy marked in detail).

Therefore, may I make this offer through your pages:

Anyone who has a copy of the first run with these errors, just send me page 2 (the one with the edition details etc.) and I will replace it without charge with a copy of the second run, which, I hope, corrects the errors.

As The Worsley Press has been publishing books on newspaper production, we have now put our advice into practice—we have purchased The Rutherglen Star, a weekly newspaper covering Victoria's major wine region. The result is that we have moved from Wangaratta to Rutherglen.

Our office is now at 142 Main Street, Rutherglen.

» ***Gordon Woolf***

Caveat Emptor

A 170 MB ESDI hard disk for $220! I put up my hand and realised mine was the last bid—I'd got it. Then a fax/modem card for $80. "Cheap goodies" I thought, "Never heard of Magtron hard disks. Maybe they'll need a bit of fiddling to get going", but after a night of fiddling with DIP switches, jumpers, BIOS settings, and low level formatting programs, I inspected the thing carefully, only to notice a crack in a double sided printed circuit board, too complicated to repair. "**No Returns or Refunds**" the conditions had said. I tried the auctioneers, and they were kind enough to replace it with another (and later, another, but never a refund). Still no luck. Take it to a knowledgeable friend. It's faulty. Seems the whole box of them was faulty. Ring up a Melbourne company expert in hard disk repair—"The company folded in Singapore 12 months ago, we've no spare parts, no circuit diagrams, we don't repair them at all."

The fax/modem card doesn't go either—a Gulfstream brand.

Never again an auction for me. At least using the Trading Post you can insist on seeing things working before you buy.

» ***Ian Goding***

[Ed: Auctioneers are brokers on behalf of other sellers. The auctioneers involved in this case provide ample opportunity to view products before the auction, and if items are in working order they are displayed working or stated to be in working order. In other cases, you bid accordingly. This is why Ian's items were so cheap—he has bid more than any other purchaser was prepared to—"you get what you pay for". At at any auction, computer or otherwise, you must exercise caution and be completely aware of the conditions of sale. Once aware of the limitations (and benefits) of this method of trading, you can use it to your advantage, until then treat it like the proverbial "horse-traders!". A postscript: I too have bought many items through auction—some duds—some gems—but quietly accept the risks to gain the benefits. —PS]

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Spindrift

by Craig Baldwin

Tracon for Windows

Requires:	Windows 3.0 or greater, 640 kB RAM
Price:	$119.90 (With Australian sectors)
Supplier:	The PC Aviator
Phone:	(03) 532-8258 Fax: (03) 532-8916

If you would like a stressful job with hours of constant pressure where just one small mistake could cost hundreds of innocent lives, you may think about a career as an air traffic controller. But before you get too serious you can see if you have what it takes by trying out Tracon for Windows.

Tracon puts you in the role of an air traffic controller where you have to manage air space above some extremely busy US airports. The area you control is known as a sector. You have to juggle aircraft in your sector by changing their direction, speed and altitude so that they stay out of each other's way and get to where they are going as quickly as possible.

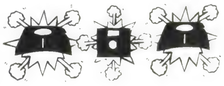
Aircraft do one of three things. They can just fly through your sector, this is fairly easy to deal with. Planes can also take off and depart from your sector, not too complicated. The fun starts when you have to deal with landings. Aircraft usually have intersecting flight paths and they all want to land at the same airport, at the same time. So you must bring them in from the right direction and altitude, one after the other taking into account different aircraft performance.

Tracon's manual constantly reminds you how air traffic control can quickly turn into a nightmare. It is not wrong. Your plan is thrown out the window when aircraft have to make forced landings, bad weather closes airports or when pilots don't do exactly what they are told. It's very hard to keep track of all aircraft when everything goes to pieces. You tend to ignore them and hope they will be okay as you frantically handle emergencies.

Fortunately, the game doesn't make it hard for you. The screen is clear and well laid out. Nearly everything can be done with just the mouse, and many of the functions are represented by icons placed around your scope. But the best thing is that your commands and pilot replies are spoken as well as displayed on the screen. This provides realism and is vital as sometimes you don't have time to read everything.

What stands out though is Tracon's flexibility. You can specify the number of planes, the weather, your equipment reliability or the skill of the pilots. You can control a few civilian aircraft on a sunny day or handle squadrons of fighters in thunderstorms. This provides good variation. You can also modify aircraft, design sectors and, if you find a friend with Microsoft's Flight Simulator (version three and above), you can link up and be the ATC for them! The current version also includes Australian and New Zealand sectors and voices with Australian accents. You're also provided with an audio tape of ATC and pilot dialogue that accompanies one of the demos.

However Tracon does have a few disappointments. Lessons mentioned on the packaging and in the manual aren't included. Despite the manual being very informative and easy to read it has a few errors that shouldn't be there. It should rate higher, but the game's price and the problems mentioned above let it down a little. It is however a very enjoyable game that can be extremely compulsive. You don't have to be a flight sim fan to get something out of it.



Rating: 3–4 exploding diskettes.

X-Wing

Requires: DOS 3.1 or greater, 640 kB RAM, EMS recommended, VGA/MCGA.

After well over a decade, home entertainment has caught up with the film industry and now, not exactly riding on the popularity of Star Wars, we have the movie tie-in X-Wing. X-Wing simulates futuristic space combat, where you take on the role of a young pilot flying for the Rebel Alliance against the evil Empire. You fight in different craft on a range of missions that are loosely based on the movie's plot.

In order to survive you'll have to first master the pilot proving ground. Here you must navigate your starfighter through a course of narrow obstacles in space. You need quick reflexes and a rabbit's foot, as it's not easy.

The next step is historical combat. Here you recreate some famous battles fought by rebel pilots. The purpose of these missions is to master each starfighter and ease you into the world of deadly "real" combat.

Once you commence your tour of duty the missions usually require you to blast as many ships as possible or provide cover for craft who have specific tasks to perform. Missions become progressively harder and your opponents become alarmingly difficult to destroy.

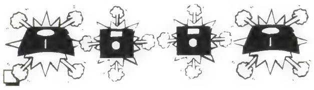
Each mission has its own objectives. They are usually tough, and all have to be achieved to the letter. Pressure mounts when you have to finish off a TIE Bomber while trying to shake a TIE Fighter off your tail. At the same time you have to boost your shields, switch weapons and still finish off another two TIE Bombers before they torpedo a vital transport you are supposed to protect.

Always outnumbered and outgunned you have to throw your fighter through tight manoeuvres to avoid laser fire and missiles from a persistent and deadly enemy. Your fingers fly over the keys to choose weapons, target ships and juggle the limited energy supply from your starfighter's power plant between your shields, lasers and engine to maximise your craft's performance against different enemy ships.

The graphics during a mission are 3D polygons that look impressive. The craft have different grey shaded panels and varied markings, ships move smoothly and more importantly big ships really are **big**. Short animation screens that show your ship taking off or waiting in the hanger provide effective interludes between missions and some occasional longer animations help develop the plot.

The game is full of digitised sound effects and speech lifted straight from Star Wars. TIE Fighters roar as they blast by you, lasers thud into your shields and your wingmen shout missile warnings and acknowledge your orders. You can even listen to music (no prizes for guessing the tune).

Although X-Wing supports many sound cards, Sound Blaster owners should make sure their model is compatible as not all are. More importantly you will really need a joystick as keys or a mouse just won't do. A bit of a gripe is that your wingmen are as thick as two short planks and tend to get wasted a bit quickly leaving you in the lurch. These things aside, X-Wing stands alone as a great game. Smooth game play, quality graphics, atmospheric sound and well thought out missions make this game a great way to spend a few hours in a place a long time ago in a galaxy far, far away...



Rating: 4 exploding diskettes.

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Dr Don's Virus Clinic

by Don Gingrich

Virus Detection Reviews

There have been a number of reviews of virus detection and anti-virus products published. In my opinion there are several significant problems with many of them. There are reasons for the failings, of course. One of the chief problems is the difficulty involved in obtaining a really "good" set of viruses for testing purposes. On the other hand I am very glad that the anti-virus researchers require significant verification before sharing parts of their virus collections.

There are a number of organisations and or individuals who publish data on virus detection effectiveness. The problem with these is that, in some cases there are ties between testers and one or more of the anti-virus software developers. (NB: I am not suggesting that there is any impropriety in the testing methodology. The developer and tester in this case are likely to share virus specimens. This gives the associated developer an advantage in tests.)

Another important difficulty in anti-virus program is maintaining a secure machine for testing. The test machine and viruses require isolation. Most testers set aside a room with a one way flow of diskettes (in only).

Since testing detection performance is so difficult, many anti-virus program evaluations concentrate on the user interface. While the interface is important it is certainly not the central issue in anti-virus quality. Programs need to be "friendly" enough to be usable. But on the other hand a very friendly program that only detects half of the viruses in the wild may create a false sense of security.

A complicating factor in all of this is that it is fair to say that about 90 percent of infections are due to about 10 percent of the viruses. Nearly all the detection software will detect this 10 percent, though this is certainly little comfort if you come across one of the rare 90 percent.

For effectiveness, programs that detect and remove viruses require regular updates. Unfortunately there are many busy people out there downloading the source code of viruses from bulletin boards, modifying it slightly and releasing it. To make matters worse there are several "library" routines available that make a virus self encrypting without the need for the virus author to program this function. For this reason a detection and removal programs need regular updates. Do not allow them to be more than two or three months old

A checksumming approach will detect almost all viruses. The exact technique used in creating a checksum is beyond this discussion, but as a result of the technique each program will have a unique 16 or (better) 32 bit integer associated with it. It should be obvious that a 32 bit checksum is superior since it offers over 4 billion possible values as opposed to about 65,000. An anti-virus system that uses checksums will detect nearly all cases of viral activity. The only exception would be a virus that could somehow reproduce the checksum. Given the number of possible values for the checksums, this is highly unlikely.

There is an additional complication in that some programs (e.g. Lotus 1-2-3) object to anything that modifies their executable files. The better programs store checksums in a separate hidden file.

Microsoft Anti-Virus and VSafe

I do not have the resources to properly test the Microsoft Anti-Virus (MSAV). The following comments about the are an extract of a detailed review by Y. Radai of the Hebrew University of Jerusalem. The review is from the virus-l newsgroup on the internet. I will try put the complete file on the bulletin board (filename MSAV_REV.TXT).

Since MSAV is part of MS-DOS 6 it will probably become the most commonly used Anti-Virus product. For this reason it is a potential target for virus writers. The article points out several significant security weaknesses.

(1) There is a simple way to disable the resident anti-virus software.

(2) The resident program fails to detect renaming of files to and from executable extensions. (e.g. .EXE or .COM)

(3) The TSR loads too late to detect problems in COMMAND.COM or programs loaded by AUTOEXEC.BAT. CentralPoint anti-virus, MSAV's parent can load in CONFIG.SYS as a device driver.

(4) The integrity checking always uses the same base in checksum calculations and only uses the first 63 bytes of the file. Also the integrity file is unencrypted.

A further problem is that MSAV has one of the lowest detection rates of any anti-virus scanning product. On most of the published tests MSAV has detection rates of around 60–70 percent on complete virus test suites when the best products are achieving rates of better than 95 percent. On tests against sets of common viruses MSAV achieves a little over 95 percent when the best products are detecting over 99 percent.

MSAV, particularly in its Windows incarnation, certainly has a smooth and friendly interface, but I personally would prefer the ability to detect a larger range of viruses over a pretty face. Also, as a network administrator, I prefer a program with command line control options. This is because I use features of the network system to check user files before allowing them to fully connect to the network. MSAV has limited abilities in this area since it relies on a file called MSAV.INI to control parameters. This is an ASCII file and thus editable, but this is just another complication.

The products in the top two or three include Skulason's F-Prot and McAfee's Scan as well as Solomon's anti-virus toolkit. However, all of these products are from overseas. For this reason they will be likely to be a bit slower at detecting locally produced viruses. If you have particular concerns in this area it would be a good idea to consider Roger Riordan's Vet or other Australian detection packages or to use the checksum features of the other packages. If you use checksums as your principal detection method you will need an up-to-date backup to enable a restore that overwrites the infected file. ❑

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386DX MotherBoard: 386DX 20 CPU, 387 Socket, AMI BIOS New: $450 Sell: $175 ONO

Phone: Ned Saflin (03) 698 7304 (9am-4pm)

V-Buster 6

by Bob Burt

Yes, you're right—you did see a software review of a V-Buster anti-virus (AV) program in *PCUpdate* as recently as July, 1993. One of the difficulties of AV software is that it needs to be updated fairly frequently to counter the new viruses that have been unleashed upon the computer world. In the case of V-Buster (VB), the need is perhaps not so great as for other AV programs, as virtually all unknown boot viruses can be detected with its software.

What's New in Version 6

VB now has a determined attempt to detect all unknown file viruses as well as boot viruses. The author does not state the degree of accuracy with which unknown file viruses can be detected, merely stating that it is "very high".

The number of known viruses which VB detects has increased from 1664 to 2818, which is perhaps a sad commentary on the wasted and contorted ingenuity of the authors of the new viruses.

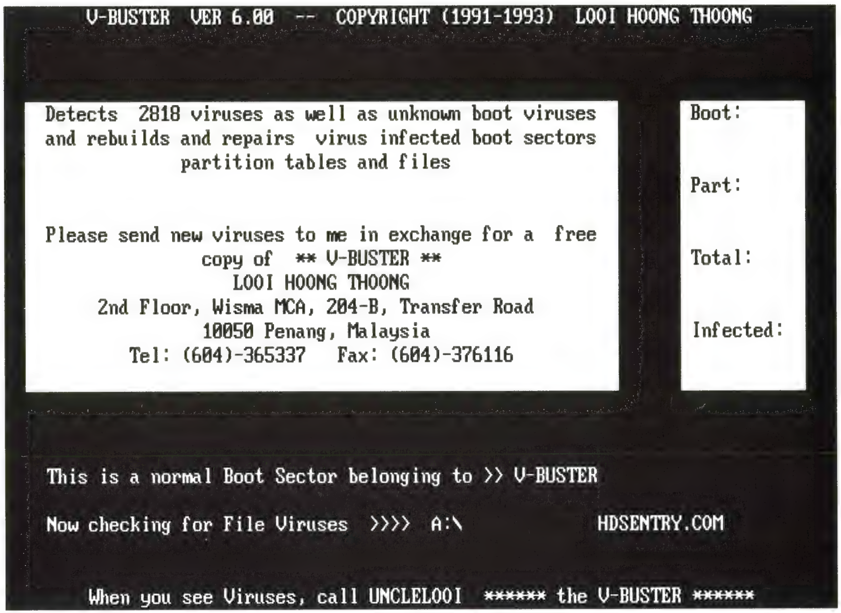
VB is also now equipped with three new programs

- TSRCHK.COM is a memory-resident "sentry" that checks all floppies accessed and files loaded. If a virus is detected in an executable file after loading, its execution is prevented by causing DOS to generate an "Access Denied" message and return to the DOS prompt.
- ADDSTR.COM allows you to add your own virus scan codes to VB.
- CMCHK.COM allows the creation of a special file to instruct all VB programs to ignore the check for modification to memory. This is to accommodate some computers which move the BIOS into RAM and prevent it from being overwritten by modifying INT 12 in the same way as a boot virus does.

All the opening screens for the entire suite of programs have been changed and some rewriting has been done to increase efficiency. The programs VBUSTER and CHKSUM can now also be executed directly from the command line, if desired.

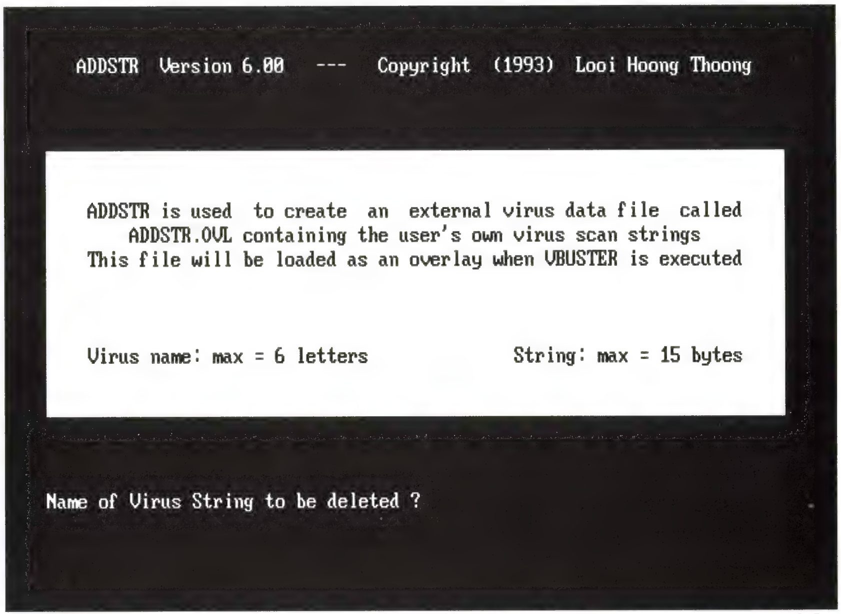
These are all worthwhile improvements to an already impressive suite of programs designed to protect the user against virus contamination.

VB retails for $99 but Melb PC members get a 10% discount from Jesenco Pty Ltd (03) 354 6658. ❑



```
V-BUSTER  VER 6.00  --  COPYRIGHT (1991-1993)  LOOI HOONG THOONG

Detects  2818 viruses as well as unknown boot viruses      Boot:
and rebuilds and repairs  virus infected boot sectors
           partition tables and files
                                                           Part:

Please send new viruses to me in exchange for a  free      Total:
          copy of  ** V-BUSTER **
              LOOI HOONG THOONG
    2nd Floor, Wisma MCA, 204-B, Transfer Road             Infected:
             10050 Penang, Malaysia
     Tel: (604)-365337   Fax: (604)-376116

This is a normal Boot Sector belonging to >> V-BUSTER

Now checking for File Viruses  >>>>  A:\           HDSENTRY.COM

     When you see Viruses, call UNCLELOOI  ****** the V-BUSTER ******
```

The New Opening Screen for VBuster



```
ADDSTR  Version 6.00   ---   Copyright  (1993)  Looi Hoong Thoong

   ADDSTR is used  to create  an  external virus data file  called
      ADDSTR.OVL containing the user's own virus scan strings
   This file will be loaded as an overlay when VBUSTER is executed

   Virus name: max = 6 letters            String: max = 15 bytes

Name of Virus String to be deleted ?
```

The Opening Screen for ADDSTR.COM

PC SWAP MEET & EXPO
COMPUTER MARKETS & SWAP MEET
CHEAPEST IN MELBOURNE
SUNDAY 12TH SEPTEMBER
DANDENONG/LYNDALE SECONDARY COLLEGE
GLADSTONE ROAD, DANDENONG NORTH
SUNDAY 19TH SEPTEMBER
MOONEE PONDS TOWN HALL
CNR. MT ALEXANDER & PASCOE VALE ROADS
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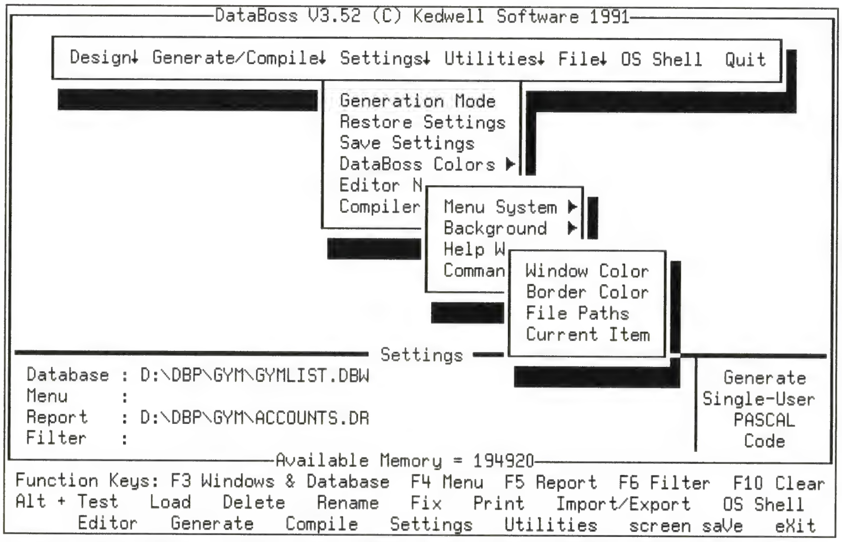
DataBoss 3.5 Australian DataBase Generator

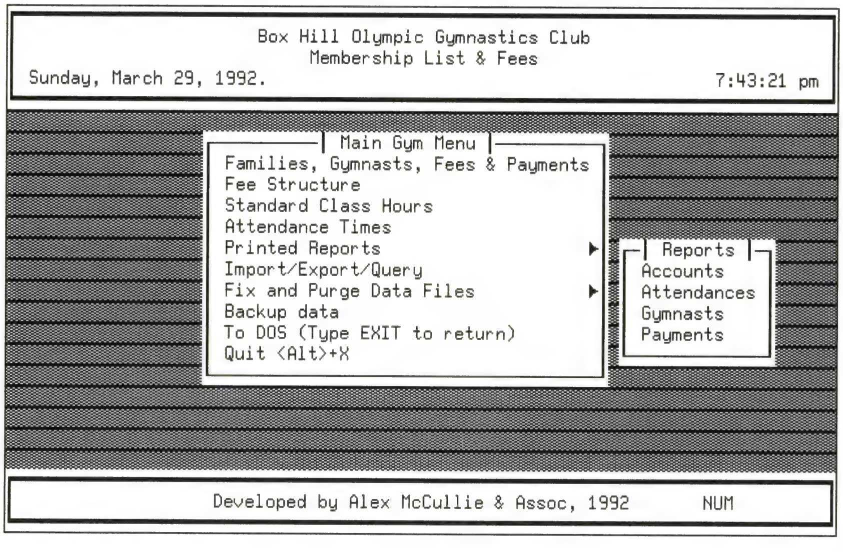
by Alex McCullie

This powerful database application generator comes from Queensland-based Kedwell Software. DataBoss integrates a WYSIWYG screen and database file creator, report writer and menu maker to generate ready-to-compile single and multi-user structured MS DOS Pascal or C source code (different versions). Compilers supported include Turbo Pascal (5.0, 5.5 or 6.0), Turbo C 2.0/C++ or Borland C++ and Microsoft C (5.1 and later) or Quick C.

This article describes creating database applications with DataBoss and its strengths and limitations as a development tool. Before discussing DataBoss, I should mention that the suitability of application generators like DataBoss depends as much on your approach as the nature of the task. A "pragmatic" developer accepts the preferred user interface of the generator to create database applications very quickly and reliably. Other developers are frustrated by the imposition of a particular interface and will devote more development time to create their own "look and feel". Fortunately DataBoss offers considerable flexibility even for both types of programmers by using developer-modifiable skeleton files to generate code. Therefore you can make modifications which are retained even when you re-generate applications. "Low level" modifications are also possible as you have access to the source code for the underlying database and screen handling routines.



```
                    DataBoss V3.52 (C) Kedwell Software 1991
 Design↓ Generate/Compile↓ Settings↓ Utilities↓ File↓ OS Shell  Quit
                          Generation Mode
                          Restore Settings
                          Save Settings
                          DataBoss Colors ▶
                          Editor N
                          Compiler  Menu System ▶
                                    Background  ▶
                                    Help W
                                    Comman  Window Color
                                            Border Color
                                            File Paths
                                            Current Item
 ───────────────────────── Settings ─
 Database : D:\DBP\GYM\GYMLIST.DBW                       Generate
 Menu     :                                             Single-User
 Report   : D:\DBP\GYM\ACCOUNTS.DR                        PASCAL
 Filter   :                                                Code
 ─────────────────────Available Memory = 194920────────────────────
Function Keys: F3 Windows & Database  F4 Menu  F5 Report  F6 Filter  F10 Clear
Alt + Test   Load   Delete   Rename   Fix   Print   Import/Export   OS Shell
     Editor   Generate   Compile   Settings   Utilities   screen saVe   eXit
```



```
                    Box Hill Olympic Gymnastics Club
                       Membership List & Fees
 Sunday, March 29, 1992.                                    7:43:21 pm

                ────────| Main Gym Menu |──────────
                Families, Gymnasts, Fees & Payments
                Fee Structure
                Standard Class Hours
                Attendance Times
                Printed Reports                  ▶   ┌| Reports |┐
                Import/Export/Query                   Accounts
                Fix and Purge Data Files         ▶    Attendances
                Backup data                           Gymnasts
                To DOS (Type EXIT to return)          Payments
                Quit <Alt>+X

          Developed by Alex McCullie & Assoc, 1992          NUM
```

Using Completed DataBoss Applications

DataBoss is designed to produce a wide range of typical database applications, such as invoicing, stock control systems, sales tracking and staff management. Each finished application is an attractive combination of windows and menus running in colour or monochrome text mode. Typically, a DataBoss application starts at a menu system which runs DataBoss executables as well as other programs and DOS and batch commands. Through passwords, the menu can be used to control read and write access in DataBoss applications.

Each DataBoss application consists of database editing and reporting combined with any special support routines. Multiple windows are used to display and edit database files formatted as one record per screen or as a table of records. Each window comes with a menu offering access to typical database functions such as next/previous records, index searching, adding/editing/deleting records and switching to alternate files. Menu choices are made by keyboard or mouse.

Every DataBoss report typically starts with a filter window giving users easy access to report options, such as printer or screen output and page length. Reports can be sent to the printer, screen or a disk file. Finally each DataBoss application is usually supplied with configuration programs and a useful file import/export/query program. Context sensitive help screens are available throughout DataBoss applications by pressing <F1>. The developer can also supply a full online manual which is activated by pressing <F1> twice.

Developing DataBoss Applications

Each application—data files, source code and executables—is stored in a subdirectory of DataBoss during development. "Point and shoot" menus are used to generate the data entry programs and reports as compilable executables. As DataBoss integrates very closely with Turbo Pascal and Borland/Turbo C, you can compile and test your program without leaving DataBoss. These executables are then usually "packaged" together with a menu created by DataBoss's menu maker software. Your distributed application consists of program files, an ad-hoc import/export/query program, run-time part of DataBoss's menu maker, and screen and printer configuration programs. Data files are not needed as DataBoss applications create them as required. No runtime royalty payments are due on the distribution of your programs and these DataBoss utilities.

Defining DataBoss Files and Data-Entry Windows

Databoss files are displayed through data entry windows. All DataBoss windows can be moved and resized as well as customised in appearance with different colours, border characters, titles and shadowing. Windows consist of text, field prompts and database fields which are defined while creating windows.

Field types are character, numeric and memo. There is special support for dates (Australian format) even though they are defined as character fields. (As DataBoss output is modifiable, it was easy to include support for time as well.) Usually fields are defined as editable, computed (calculated but not stored) or display only (stored but not editable). Other choices are for multi-file support. A picture, like "5X", is used to define its length and control the data input. Other useful pictures are "U" (upper case), "L" (lower case), "#" (numeric), "A" (alpha), "S" (each word capitalised) and "Z" (no zero display).

Each field can be part of an index for fast retrieval or displaying records in an alternative sequence. Indexes are defined as duplicate or unique. (Unlike xBase products, unique indexes in DataBoss reject duplicate values during data input.) Fields can be the whole index or a segment with other fields. You may also restrict their length used in the index, such as the first 5 characters of a 40-character Company Name field. DataBoss supplies special functions for indexing all data types except memo.

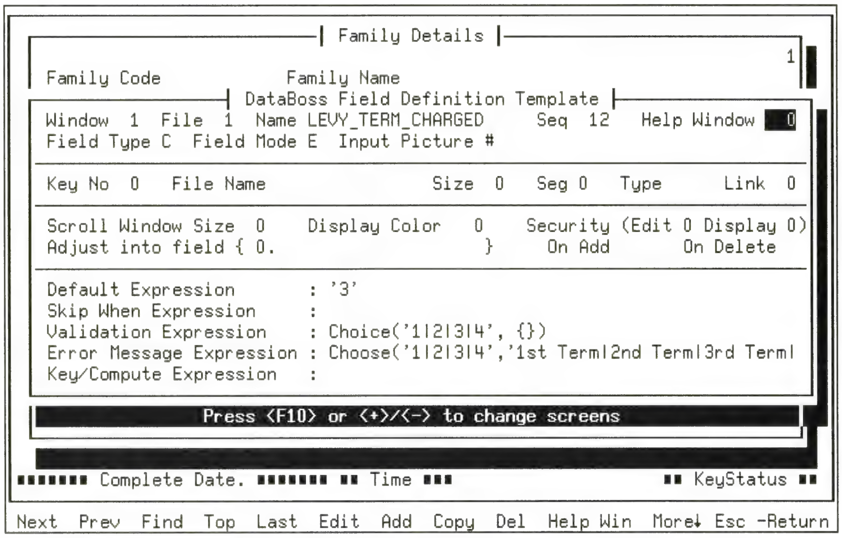
DataBoss offers many other field settings to control data input. Each field may have a Default value, Skip When (skipping the current field if an expression is true), Validation and Error Message (validating the user input) and Key/Compute (calculated field values or an index expression). Some examples of these settings are automatic field numbering, today's date and time, required entry in a field, range checking and lookup tables. Each aspect of field definition has a help screen (<F1>) and selection of common choices (<F2>). Default value, Skip When, Validation and Key/Compute prompts may contain constants, expressions and DataBoss and user-defined functions.

Other field settings include prompting sequence, field colour, edit/display security level, scrollable field display less than the field length and automatic links between "parent" and "child" files (described later). Help screens can be easily created and customised for each field in a similar way to data-input screens. Then pressing F1 the user displays your help screens for the field prompts or DataBoss help screens for the window menu items.

The final stage is to generate and compile the C or Pascal source code using pre-coded skeleton files. DataBoss can also generate corresponding database fix programs for removing deleted records and re-creating corrupted index files.

Creating DataBoss Reports

DataBoss comes with comprehensive and very flexible report writer which uses bands to control when information is printed. Each file used by a database has a "home" band containing a Header (start of the file), Data (for each record in the file) and Footer (after the file is printed). Files can also have a Control Break band which is printed whenever a control value, such as a department code, changes. Report Header and Footer bands (beginning and end of report) and Page Header and Footer bands (beginning and end of page) are available if required.



```
Family Details                                            1
Family Code            Family Name
            DataBoss Field Definition Template
Window  1  File  1  Name LEVY_TERM_CHARGED     Seq  12   Help Window  0
Field Type C  Field Mode E  Input Picture #

Key No  0   File Name                 Size  0   Seg 0   Type      Link  0

Scroll Window Size  0    Display Color    0    Security (Edit 0 Display 0)
Adjust into field { 0.                    }      On Add       On Delete

Default Expression        : '3'
Skip When Expression      :
Validation Expression     : Choice('1|2|3|4', {})
Error Message Expression  : Choose('1|2|3|4','1st Term|2nd Term|3rd Term|
Key/Compute Expression    :

            Press <F10> or <+>/<-> to change screens

■■■■■■■ Complete Date. ■■■■■■■ ■■ Time ■■■                 ■■ KeyStatus ■■
Next  Prev  Find  Top  Last  Edit  Add  Copy  Del  Help Win  More↓ Esc -Return
```

Even though there is only one level of control break per file you can create multiple levels of grouping, such as by State then City in a Client file. Every time DataBoss processes a record it has already read the next record, e.g. if "City" holds city of current record then "__City" holds the city of the next record. DataBoss provides the facility to execute report lines only when certain conditions are true. Therefore the condition for printing any City footer lines would be "City <> __City", that is when the value of City is about to change.

A useful feature is that the report writer uses the file relationships established in the screen designer. For example, if two files are linked to represent an automatic parent-child relationship e.g. department file (parent) -> staff file (child), their file bands are nested in the report writer. This ensures that records from the child files are processed with their correct parent records. Alternatively you can link files differently in the report writer to that used for data input. This provides considerable flexibility for structuring information in different ways for reporting. (See Structuring Files later for more about file linking.) Also note that records can be printed out using an existing index or a temporarily created one (even on a calculated field).

Fields can be inserted in any band with the report menu. Choices are Field (database field from pop-up list), Calculation (e.g. Pascal or C function or variable), Variable (a standard DataBoss variable e.g. today's date, page number, database, program name or number of records read), Total (total, count, average, high, low values of any fields, with or without resetting for each control break) and Statement (any Pascal or C programming statement e.g. inc(ClassNumbers) in Pascal). Note: you can define variables for your use in the report. For example to restrict a sales and profit report to 3 regions per page, you might define a new variable to track the number of regions printed per page before forcing a page break.

Usually any report needs to provide some choices to the user before executing, such as printer or screen output, record order, page length, record selection and so on. DataBoss does this by creating a filter window which displays prior to printing the report. Like data entry screens for database files, you can define fields for access internal report variables (e.g. page length control, index selection), fields and DataBoss or user-defined functions. As before help screens can be created for each filter field.

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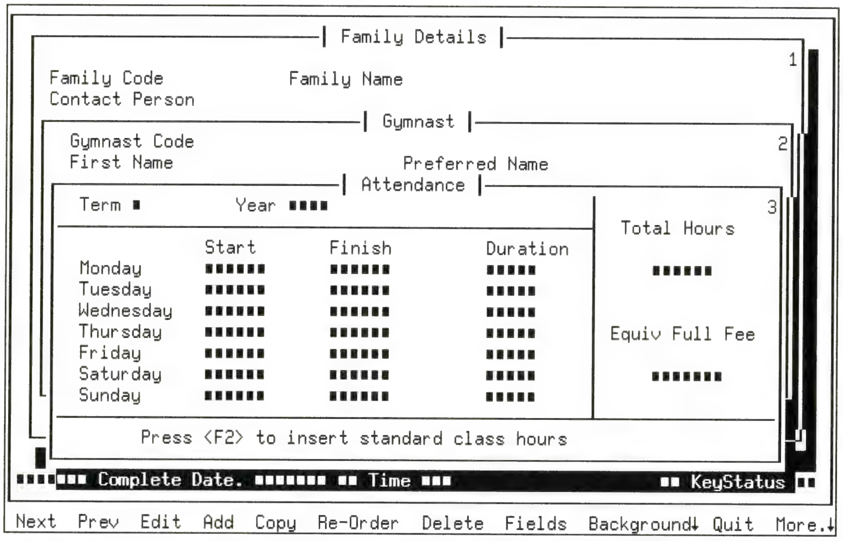
After defining the report you generate and compile the program. DataBoss uses report skeleton files to generate the source code. Like database generation these skeletons are modifiable.

Structuring the Files of a DataBoss Application

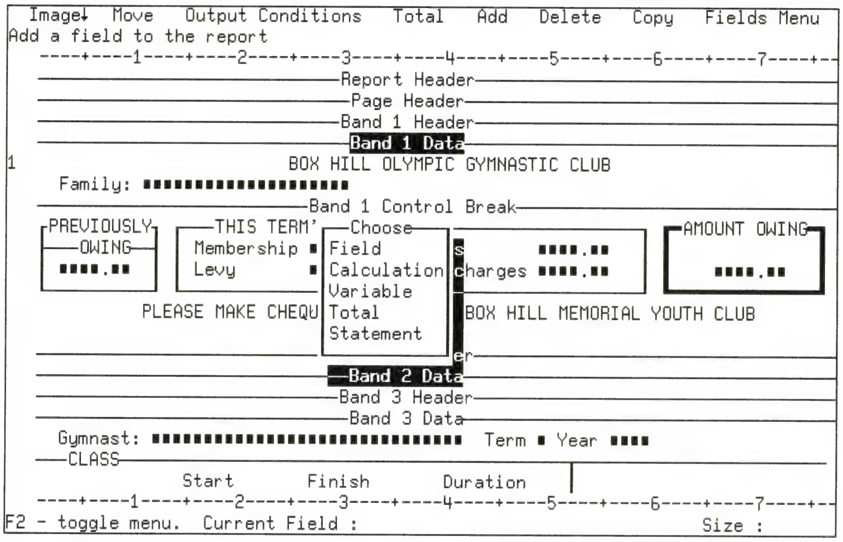
A special mention should be made about the way to organise database files for a DataBoss application. It takes time to learn how to structure a complex database application in DataBoss. Once understood, though, DataBoss offers a good non-programming solution for maintaining most inter-file relationships, often requiring complicated programming in many other PC database programs.

Each DataBoss executable can access up to 16 database files. During data input, DataBoss provides two ways of controlling the relationships between files.

Firstly, you can define an automatic link between a parent file and a child file based on common fields, such as using "Client Code" in CLIENT (parent) and INVOICES (child). Automatic linking ensures that, whenever the user browses through one file, the record pointers are always aligned in related files and the correct records are displayed on the screen. Also record linking ensures integrity of data is maintained even when deleting parent records or changing linking field values. For example, deleting parent records will remove corresponding records in children files.



```
| Family Details |                                          1
Family Code              Family Name
Contact Person
| Gymnast |                                                 2
Gymnast Code
First Name                        Preferred Name
| Attendance |                                              3
Term ■            Year ■■■■
                                                  Total Hours
             Start       Finish        Duration
Monday       ■■■■■■      ■■■■■■        ■■■■■       ■■■■■■
Tuesday      ■■■■■■      ■■■■■■        ■■■■■
Wednesday    ■■■■■■      ■■■■■■        ■■■■■
Thursday     ■■■■■■      ■■■■■■        ■■■■■      Equiv Full Fee
Friday       ■■■■■■      ■■■■■■        ■■■■■
Saturday     ■■■■■■      ■■■■■■        ■■■■■       ■■■■■■■
Sunday       ■■■■■■      ■■■■■■        ■■■■■
          Press <F2> to insert standard class hours
■■■■■■■ Complete Date. ■■■■■■■ ■■ Time ■■■               ■■ KeyStatus ■■
Next  Prev  Edit  Add  Copy  Re-Order  Delete  Fields  Background↓ Quit  More.↓
```



```
 Image↓  Move   Output Conditions   Total    Add    Delete    Copy    Fields Menu
Add a field to the report
   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+--
   ------------------------------Report Header-----------------------------------
   -------------------------------Page Header------------------------------------
   ------------------------------Band 1 Header-----------------------------------
   ------------------------------Band 1 Data-------------------------------------
1                             BOX HILL OLYMPIC GYMNASTIC CLUB
    Family: ■■■■■■■■■■■■■■■■■■■■
   ---------------------------Band 1 Control Break-------------------------------
  PREVIOUSLY     THIS TERM' Choose                              AMOUNT OWING
    OWING      Membership ■ Field       s        ■■■■.■■
   ■■■■.■■     Levy       ■ Calculation charges  ■■■■.■■           ■■■■.■■
                            Variable
        PLEASE MAKE CHEQU   Total       BOX HILL MEMORIAL YOUTH CLUB
                            Statement
   -------------------------------------er---------------------------------------
   ------------------------------Band 2 Data-------------------------------------
   ------------------------------Band 3 Header-----------------------------------
   -------------------------------Band 3 Data------------------------------------
    Gymnast: ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■  Term ■ Year ■■■■
   --CLASS-----------------------------------------------------------------------
             Start       Finish       Duration       |
   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+--
F2 - toggle menu.  Current Field :                                    Size :
```

The alternative to automatic linking is using programming to control these relationships. Fortunately DataBoss simplifies the process by providing routines for file lookup and validation. One routine, "ListAdd", allows the adding of missing or new parent details while validating a code in a lookup table.

DataBoss's method of automatic linking affects database design for a particular program. As a child file links back to one parent file only, all linked files form a hierarchical structure with common parent files. This structure is usually supplemented with manual links to other files using lookup and validation routines. For example, an invoicing/payments data structure may have three automatic links CLIENTS -> INVOICES -> INVOICE ITEMS and CLIENTS -> PAYMENTS with a manual link between INVOICE ITEMS and PRODUCTS to validate products and services being sold.

The first parent file, CLIENTS in the previous example, controls the display of all other files which are linked. A user can browse invoice records of the current client only. He or she must then change client records before browsing other invoices. Therefore the linking structure of an input DataBoss executable file controls the previous/next browsing of records in all child files. Searching by index, though, does allow searching for any record in a child file regardless of the parent record. (As an example of DataBoss's flexibility, I changed the database skeleton to allow browsing across different parent records. <P> and <N> is for browsing previous and next records of the same parent record. I made <Ctrl>+<P> and <Ctrl>+<N> for browsing across different parent records.)

At times choosing the appropriate controlling parent file seems a difficult decision. However you can create many executable files with different linking structures using the same database files. This is because automatic linking is defined as code in the executable program and not as part of the data structure. Therefore one program can have CLIENTS as the controlling file (for reviewing clients and their invoices) and another with INVOICES (for creating invoices more quickly). To use same file definitions in different database programs, DataBoss provides a migrate facility to copy definitions from one database to another.

As mentioned before, the report writer isn't limited to the data structures established for data input. In the invoicing example, you could create a report with Products (as the parent) and Invoice Items (as the child) without any special programming.

Re-structuring an Application

Often your database design will change after data have been entered into the files. DataBoss provides procedures for converting the data to the new structure. When generating the source code you're given the option of saving old record modules. DataBoss provides routines for using the old record modules to convert the old data to the new structure. This change can be done on-site without running the whole DataBoss program.

How much programming is required?

DataBoss allows the addition of programming code in two ways. You can include up to 16 files of Pascal or C code with variables declarations, functions and procedures in each database or report executable. These files are used to customise a specific application. Or, for more fundamental changes, you can modify the actual skeleton files which are just C or Pascal code. In both cases your code is retained even when applications are regenerated. Note: each application can use its own copy of the supplied skeletons.

It is possible to create respectable multifile database applications with data validation, reporting and menuing without any programming. In fact many DataBoss sales are to people with little or no programming experience. A developer, though, is likely to customise applications by including functions and procedures into a particular application or by modifying the underlying database and report skeletons. The manual and tutorial cover basic DataBoss usage fairly well, even though they provide only some of the technical information necessary for professional developers. The best way to learn how to make modifications is to study the skeletons and generated source code and contact Kedwell's technical support in Brisbane. Once learnt, though, DataBoss offers considerable flexibility in meeting unusual requests while being able to develop applications rapidly.

Here's some sample modifications I've made. The first and simplest was to add support for time validation and calculations.

One involved exercise was to change how DataBoss displayed editing windows. Each DataBoss file has a unique identification number. To display file number 8 you must cycle through and display the first 7 files. The first easy step was to create a pop-up menu for direct "zooming" to any file. Then I changed the database skeleton to specify which files and windows are displayed in the background while accessing a particular file. For example, you may want only files 1, 2 and 3 to display in the background when the user is accessing file 8.

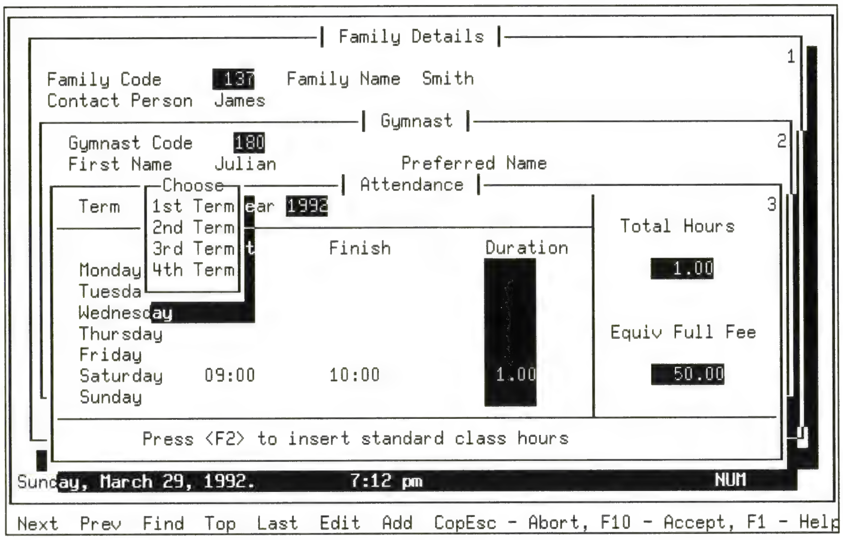
Another typical modification is to optimise screen input to suit particular applications. In two recent commercial applications I started the cursor mid-way through the screen during record editing and adding when some fields already had particular information.

A useful modification in the report skeleton is to display on-screen progress of temporary index creation and report creation. I programmed in a boxed shaded bar which filled as the report progresses. The flexibility of DataBoss is that you can decide how the report progress is displayed. Note that the additional code doesn't noticeably slow execution speed, as your additional programming will be compiled as fast Pascal or "C" code.

An area where programming is usually needed is the creation of routines to implement any global changes throughout a file. DataBoss doesn't provide support for mass changes, such as removing and archiving old records. After studying DataBoss code, C or Pascal programmers should be able to write such routines without any difficulty.

Technical Support from the Creators of DataBoss

This is one of the most important aspects of deciding on a new development software package. From my experience Kedwell's support has been excellent. In all cases I spoke to one of the developers of DataBoss and got excellent hints on making modifications to the skeleton. Later Kedwell sent me a disk of tips and modifications that they developed for their own applications. I find faxing questions or problems an excellent way of communicating with Kedwell. It's cheaper and they respond promptly.



```
                              | Family Details |
                                                                    1
  Family Code      137   Family Name  Smith
  Contact Person   James
                                    | Gymnast |
    Gymnast Code     180                                            2
    First Name       Julian              Preferred Name
     -Choose-                 | Attendance |
   Term   1st Term ear 1992                                         3
          2nd Term                                 Total Hours
          3rd Term t       Finish        Duration
   Monday 4th Term                                     1.00
   Tuesda
   Wednesday
   Thursday                                        Equiv Full Fee
   Friday
   Saturday    09:00        10:00          1.00        50.00
   Sunday

          Press <F2> to insert standard class hours

 Sunday, March 29, 1992.          7:12 pm                      NUM

 Next  Prev  Find  Top  Last  Edit  Add  CopEsc - Abort, F10 - Accept, F1 - Help
```

Final Comments

DataBoss costs $795 (with Educational and Government discounts available) and requires one of the supported Pascal or C compilers. Compared to other packages such as Clipper and Clarion, DataBoss represents very good value for money with no other "add-ons" required. I'd recommend DataBoss for:

1. Developing of single- and multi-user database applications with strong data input validation and reporting needs. Most of these are handled automatically by DataBoss. You then have the flexibility in a full programming language to provide any number of customised routines.
2. Producing fast, compiled applications free of run-time royalties. DataBoss can run on any 640 kB PC compatible without memory problems even on a network. It is very efficient.
3. Teaching Pascal, C, applications programming and database design.
4. Using existing Pascal or C knowledge, even limited, to start developing commercial database applications.
5. Prototyping and developing applications with the same tool. Involved multi-file database applications can rapidly be developed with DataBoss.

Even though DataBoss is very flexible, it isn't the perfect database tool for all situations. I wouldn't, for example, use DataBoss for clients whose requirements are highly changeable or needing complex ad hoc queries. I'd recommend a general database package like DataEase or Paradox which gives extensive runtime flexibility through menus (at the full product cost) and then convert the established application to DataBoss for improved performance.

In summary, DataBoss is an impressive Australian product which enables casual and professional developers to create quality database applications. Once you understand DataBoss's way of structuring files you can take full advantage of its automatic data handling facilities. Kedwell provides excellent support, though there is a need for more technical information to help developers create DataBoss applications.

If you want to discuss DataBoss please contact me through my consulting firm, Alex McCullie & Assoc, by telephone: (03) 898 6599 or fax: (03) 899 3404. All rights reserved, 1993. ❑

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Book Reviews

Compiled by Major Keary

HELP! Paradox for Windows

» Reviewer: John Carragher

John Carragher is no ordinary Paradox user. He won a trip to the Borland Database Developers Conference for his prize-winning Paradox program for eye surgical analysis, written for an ophthalmic surgeon.

When I started using *Paradox* it was Version 1, for DOS, and there were no books, other than the manuals, to explain the package. The release of *Paradox 2* made people take the program seriously and books began to appear. Some of the early ones seemed intended for those who did not have a legal copy, but the standard has gradually improved.

Paradox for Windows (PFW) bears only passing resemblance to the DOS version and has many times the power of the original release. The manuals are somewhat overwhelming and would not have been easy to produce. As usual with manuals, they document features and syntax and provide some examples. However, many users are likely to baulk at using them to develop their own applications.

Lisa Blow's *HELP! Paradox for Windows* is no lightweight effort to help both experienced Paradox-for-DOS users and those who have never used *Paradox*. Over 1000 pages provide a well-planned guide to **using** PFW.

It should be faster and easier to become productive in PFW by following Lisa's book than by following the manuals. The reason is that the emphasis is on using the features of *Paradox*. Reference back to the manuals is, of course, still recommended.

The twenty chapters deal with accessing the program, setting up databases and validated data entry sessions, performing queries and designing reports, exchanging of data with other applications, and providing an introduction to ObjectPAL. The five appendixes provide a Windows primer, information on working with dBASE tables, multiuser issues, the inclusion of graphics, and customising PFW.

The author has designed the book for readers with a wide range of experience. It is organised in such a way that it is easy to move to those sections which are relevant to a user's needs and skip those that are not. The book can take a reader to an advanced interactive user level with sufficient knowledge of ObjectPAL to be able to, for example, add buttons and menus to an application.

It should be recognised that ObjectPAL has enormous depth, and it was not until PFW was released that Borland and developers alike have been able to explore the many ways of using the radically different approach to developing applications. There are developers who are, or will be, writing books dealing specifically with ObjectPAL—but they are unlikely to be released in the near future. There is much to learn about which objects should have code attached to them, and which of a myriad of functions should be used and why.

It is unlikely that the majority of PFW users will ever need to know more about ObjectPAL than the information contained in *HELP! Paradox for Windows*.

Lisa Blow:
HELP! Paradox for Windows
ISBN 1-56276-039-4
Published by Ziff-Davis Press
1042 pages
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PC Learning Labs Teaches Microsoft Access

» Reviewer: Richard King

This is one of many books in the PC Learning Labs series put out by Ziff Davis Press (which also publishes PC Magazine). It is a book for real beginners and even assumes you know nothing about Windows. It contains instructions on finding and running MS Access from Program Manager which are given in strange terms such as:

"Observe your screen. If it displays a large rectangle entitled Welcome to ..."

and

"Otherwise, locate the upward-pointing triangle in the upper-right corner of the ..."

As I said, real beginners stuff. If "consult your Windows manual" is not enough then a picture of a screen with Program Manager displayed would save the thousand words. I think it would also be worthwhile telling the absolute beginner what these screen objects really are called.

The book is written in a very clear style with numbered, step-by-step instructions throughout. The layout, choice of fonts and screen dumps are excellent and very appealing. At the end of every chapter there is a summary of the main points learnt in that chapter.

The book comes with a number of databases on a diskette (which, when you get to the last page of the book, tells you that by purchasing the book you agree to Ziff Davis' licence agreement on the use of the software on the diskette). The diskette contains the material for the tutorials in the book. I found the sample all-American databases very dull and boring compared to the token, but refreshing, international flavour of Microsoft's own Access manuals and sample databases.

All the topics you'd expect to be covered are covered: creating a database, queries, forms, reports, advanced forms, etc. In fact, the order in which the material is presented mirrors that in Microsoft's own manuals quite closely.

How technical does the book get? Well, not very, frankly. Macros are covered to some extent but you won't find any mention of the Access Basic language at all. Through the use of macros, two forms are synchronised and a window is moved to a new position on the screen.

Appendix A contains instructions on how you go about installing MS Access. It does say that the book assumes you have installed Access but then goes on to suggest that you delete your Access installation and install it their way so that your installation matches up with what the book assumes. Sounds a bit dangerous to me. I wonder how many novice Windows users who are still coming to grips with "upward-pointing triangles" have accidentally deleted more than just their installation of Access in their enthusiasm to follow the book to the letter.

Appendix B is genuinely useful. It contains a table of shortcut keys. Did you know that Ctrl+" or Ctrl+' copy the value from the previous field. Or that Shift+Enter will save the current record?

If you are not comfortable with Microsoft Windows or its manuals and you prefer having essential operations described in terms of actions on elementary geometrical shapes, if you cannot operate the MS Access installation program, if you cannot follow the step-by-step instructions of the Access Wizards, if you won't be doing much with macros or Access Basic then this book is for you.

PC Learning Labs Teaches Microsoft Access
Published 1993 by Ziff Davis Press, Emeryville
412 Pages
Includes one high-density 3 1/2 inch diskette

Windows Rapid Application Development

» Reviewer: Richard King

Windows Rapid Application Development is a very readable and informative book describing and comparing a great many visual Windows development tools and products. The authors are not at all hesitant to tell you how they think software ought to be developed and start off in the preface by suggesting that the three secrets for radically reducing the time to develop software are:

- Develop less
- Develop less
- Develop less

Just to reinforce this, in Chapter One, they say the only way to get programming done more rapidly is to do less of it. And the only way to do less of it is to use other people's code.

The book is also about applying the MARVEL programming technique—a technique developed by the authors—to many of the tasks that are part of developing a Windows application. MARVEL stands for:

Modular Programming
Automatic Interfaces
Rethinking
Visual Development Environments
Extensibility
Linking

Obviously such an acronym has to be contrived to some extent, but the authors have hit upon a fairly comprehensive set of guidelines—the authors call it a methodology, but I'm not sure it has reached that status yet—to help rapidly develop software.

Most examples are presented in one of the four visual development environments: Visual Basic, ToolBook, ObjectVision or PowerBuilder. The book does not teach you the programming languages that are part of those environments and assumes you can read and understand introductory programs written in those languages. Appendix B describes the programs on the disk that accompanies the book and this may give you some extra insight into the programming languages behind those visual development environments.

The book consists of four parts followed by five appendixes and an index. The first part is about MARVEL programming and how it applies to Windows application development.

The second part introduces the four visual development environments, with one chapter for each of them. If you ever need to compare or choose one of these environments or simply want to know a little about each then the information in these four chapters alone can easily justify the cost of the book.

The third part covers the aspects of development that ensure delivery of a quality application: debugging, short cuts, testing, quality, producing help, creating installation programs, version control and performance.

The last part covers specific tools and techniques such as working with databases, DLL construction, converting DOS applications to Windows and networking.

Remember, this is not a technical book that you can turn to if you've got a programming problem. For instance, if you are already writing a DLL then Chapter 18 is useless if you wish to find a solution to your programming problems. If you've never written a DLL before then it provides very useful introductory and comparative material on how to go about solving the problem and what options are available—though I don't suggest you write your first DLL in COBOL! (nor does the book either).

Yes, I didn't know it, but you can write a Windows DLL in COBOL and a complete example is given in the book! This captures what the book is all about. If you have a large amount of source code written in COBOL and you wanted to port that application to the Windows environment then the best option could well be to redo the interface in something like Visual Basic or Toolbook and call the original application code once it has been placed into a DLL.

The diskette that accompanies the book contains a large number of compressed files (accompanied by the slowest of decompression programs I have met—the shareware author of the compression DLL even apologises for its performance in the ReadMe file!). An installation program enables you to select which of the four visual development environments you have and for which you wish to install the sample programs. Note that only the Visual Basic runtime environment is provided on the diskette so if you don't have the ToolBook, ObjectVision or PowerBuilder runtimes then the other samples are not going to be of much use unless you can obtain them from somewhere.

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The most interesting program on the sample diskette is the COCOMO/W program. This is Barry Boehm's Constructive Cost Model for estimating the cost of a software project from about twenty "environmental factors." The whole of Appendix E is devoted to describing this program. Contrary to what the Appendix indicated, I could not find the source to this program on the diskette.

You will probably not read the book in chapter order. In fact, the authors suggest at the beginning that you will probably want to jump all over the place. I thoroughly enjoyed perusing this book, not so much to gain more insight into the MARVELprogramming technique, but more to compare and learn about the many different options available to build Windows applications. Of course, the concepts behind MARVEL are used wherever possible but they are not intrusive and by and large they are hardly anything to disagree with.

This book could well become a "resource" book for Windows application developers. It would require an annual update and, to avoid becoming excessively large, some of the tutorial content would have to be removed. I, for one, would buy such a Windows resource book.

David Sarna and George Febish:
Windows Rapid Application Development
Published 1993 by Ziff Davis Press, Emeryville
480 pages. Includes one high-density 3 1/2 inch diskette

All You Ever Wanted to Know About Computers

» Reviewer: Major Keary

Well, almost. The *Encyclopedia of Computer Science* is a very big book of over 1500 US letter-size pages. It also comes at a big price, $251.95, which will put it out of the average user's reach.

The first edition was published in 1976 and contained 470 articles from 210 contributors. A second, enlarged, edition appeared in 1983. Now, after nine years, the third edition has 605 articles, from 370 contributors, ranging from "Abstract Data Type" to "Zuse, Konrad".

Konrad Zuse, for those of you who like to tuck away unusual facts for occasional one-upmanship, was born in 1910 in Berlin and has been famous since 1970 as a painter. In between he developed and built computers, starting development work as early as 1934 on a program-controlled computing machine with electro-mechanical and mechanical elements. By 1941 he had built a fully operational machine that used binary numeration with floating point arithmetic.

That was his second computer, which used surplus telephone relays, an economy extended to his next machine, which employed 1800 for memory, 600 for calculation, and 200 for sequence control. He used 8-bit coding, which was entered by manually punching holes in recycled 35 mm film!

In between *Abstract Data Type* and *Konrad Zuse* there is a wealth of information. Much of it is of a technical nature and written in scientific style. The number of articles, 605, may seem small for such a wide-ranging encyclopaedia. However, rather than have a myriad of short items, the editors have used a lesser number of well-written and detailed articles.

There are two indexes, one by personal name and the other by subject, that provide page references. While Bill Gates does not warrant a stand-alone article, readers avid for information about him will find his name in the index. Subject matter, such as CP/M, may be mentioned in several contexts and each occurrence is indexed.

There is also an index of acronyms, from A/D (*analog-to-digital*) to YACC (*Yet Another Compiler-Compiler*)—but no YAM (*Yet Another Modem*), an acronym from CP/M days when a new modem program was appearing every second week.

I was surprised by some omissions, but found them also left out of other computer dictionary-cum-encyclopaedias. In no other collection of information about computer science will one find such detailed treatment of, for example, *Searching*—some six pages with mathematical formulas and a substantial list of references. *Operating Systems* is dealt with even less briefly—twenty-three pages.

The articles on *Numerical Analysis* and related topics are definitely not for casual browsers.

The book is about computer **science**. It is not a dictionary of computer terms. It is by far the best of its kind for any institution where access to serious reference material is required. Public libraries and those in secondary schools and tertiary education institutions should have the *Encyclopedia of Computer Science*. Many other places would find it a useful acquisition, particularly where hardware, operating systems, software, or peripherals are being developed.

Raltson and Reilly (eds.):
Encyclopedia of Computer Science
ISBN 0-442-27679-6
Published by Van Nostrand Reinhold
1558 pages
Distributed in Australia by Thomas Nelson
RRP $251.95

Keyboard and WP Skills for Children

» Reviewer: Swaroop Davies

It is refreshing to find a book written for children and specifically designed to address word processing/keyboarding skills. One may assume too readily that such skills are requirements of adults in the work-force rather than children. It also occurred to me when I first looked at this book that, considering the vast array of available word processing packages (both commercial and shareware), why have yet another word processing program?

To answer that nagging doubt I will deal separately with the book itself with the sample files on disk, and the word processing program referred to in the book (and which comes on a disk with the book).

The book says its intended audience is ages 8+. Although it is extremely well presented—and meticulous in fulfilling its stated objectives of introducing word processing and related skills—I suggest the audience is probably closer to the high-school-student age group. This is more a result of the subject matter rather than the approach taken by the book.

Having said that, the author is to be commended for making what, to most people, is an unappealing subject into something that could be very interesting to a first-time user of word processing—especially a youngster. Each topic is clearly written and follows logical steps throughout, there are several illustrations, and fun exercises to keep the interest level up. Topics do not assume any particular knowledge on the part of the reader and start with the basics, including concepts about computers and keyboard layouts. There is even a chapter on touch typing! To the numerous two-finger typists out there who wish they had learnt to type "properly" this chapter could be an interesting way to cultivate new habits!

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The book then goes on to unravel the mysteries of the accompanying word processing program. This includes creating new files, opening existing files, saving files, editing files, deleting and inserting, printing work created with the correct formatting options, and copying/moving blocks of information. As a final topic it touches on the use of two or more files simultaneously in the one document.

The book ends with a glossary of terms and answers to quiz questions asked in the previous sections.

For the price of the book/disk, the supplied "Tic Tac Type" program is surprisingly versatile and provides a good subset of the features of a full-fledged word processor.

It has, for instance, pull down menus, menu bar featuring file options, text editing options, search and replace options, use of up to six reference documents to work from, basic formatting, and of course help on the functions displayed on the menu bar.

This book/disk combination provides a good grounding in the concepts of word processing and related skills. It provides a basic word processing program that can be used as a first step to the use of more sophisticated packages. I envisage its best use would be in a classroom or home situation where there is either a restricted availability of a full-fledged word processor, or in situations that do not require the offerings of more sophisticated packages. In those instances it represents good value for money.

Marta Partington:
Tic Tac Type, A Child's Computer Writing Kit
ISBN 0-672-30215-2
Published by SAMS
126 pages
RRP $39.95

Effective Computer User Documentation

» Reviewer: Major Keary

We have all fumed at times over the poor way in which user manuals are presented. Those responsible now have less of an excuse with the release of a book that is itself a paradigm of good documentation.

James Crown, author of *Effective Computer User Documentation*, is well-qualified for the task—although it does not always follow that "well-qualified" people make good authors. In this case the publishers have found someone whose business it is to create user documentation and who is able to describe most effectively how to handle all aspects of the craft.

He is Managing Director of an Australian company, Communications Publishing Corporation Pty Ltd. Anyone who uses an Avtek modem will be familiar with their work—not the hardware, but the documentation. James Crown is Visiting Professor at the College of Computer Management and Information Technology at the Polytechnic University of the Philippines and has delivered seminars on user documentation in the US and Australia.

While his book is aimed at "those who have to produce and manage a documentation project", it is a valuable reference and guide for anyone who writes, or who aspires to write, about computer software, hardware, procedures, and so on. While the thrust is the production of *books* that invite the user to read them, much of what he says is applicable to computer writing generally.

The author quickly makes a particularly important point: too often manuals are written from the wrong perspective and fail "to communicate effectively with the common user".

The author does not discuss theory, but describes in clear, jargon-free language the steps necessary to writing, designing, and producing effective manuals. There is no discussion of research, or lengthy lists of esoteric books, journals, and papers.

Online help and online tutorials each have a section. Screens are more difficult to read than printed pages and require a lot more "white space" as well as other considerations. The trend towards electronic documentation is growing, but there is not much literature about it.

Effective Computer User Documentation is the best of its kind and deserves a place in any reference library. Every establishment that has to provide user manuals with its products should make sure everyone associated with the documentation process has a copy.

James Crown: *Effective Computer User Documentation*
ISBN 0-442-00863-5
Published by Van Nostrand Reinhold
425 pages
RRP $76.95

New Information Technologies

» Reviewer: Major Keary

This is described as a "high level guide" to the use of artificial intelligence, fuzzy systems, neural systems, and so on. It is, indeed, high level and written for "MIS professionals (who) will appreciate the selection of both positive and negative examples of information experiences". If you have an academic interest in the field then you will want to know the author: Dimitris Chorafas; the publisher: VNR; and the ISBN number: 0-442-00966-6. It can be ordered directly from Thomas Nelson Australia, telephone (03) 685 4111. A **discount** is available to members of Melb PC. ❑

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Another Way To Skin The Cat

by Max Chandivert

Most of the software used on personal computers is ready-made commercial software, but a small program written for a specific purpose is often more effective in terms of results versus resources. Sometimes there is no ready-made solution and the ad-hoc solution is the only possible one.

Suppose for a moment that we are contemplating implementing an industrial process or designing a structure or mechanism involving any sort of dynamics. If we can represent the system's future behaviour on a computer through simulation, we can avoid functional pitfalls, including instability, we can test performance and optimise parameters without using any actual hardware.

The prerequisite for this is to be able to represent the characteristics of the system elements by means of mathematical equations. We select sufficient variables to describe the system state at any time and we write the equations which represent the relations between these variables. This is where the component manufacturer's data and the engineer's experience must combine to provide a realistic input. Without a reliable model to work with, garbage in yields only garbage out.

LISTING 1

In this extract A and B are previously declared constants with value 0.2928932 and 1.7071068 respectively. K_Calc is a procedure for calculating the Ks from the various dYs/dt. The Rs and Qs are intermediate quantities to facilitate evaluation. The following segment is not offered as a model of programming, but to show clearly the procedure technique. Before executing it, the user is required to enter the initial conditions, i.e. the Ys starting values.

```
K_Calc;
repeat
   FOR i:= 0 TO 4 DO
   begin
      R[i] := 0.5*K[i] - Q[i];
      Y[i] := Y[i] + R[i];
      Q[i] := Q[i] + 3.0*R[i] - 0.5*K[i];
   end;
   K_Calc;
   FOR i:= 0 TO 4 DO
   begin
      R[i] := A*(K[i] - Q[i]);
      Y[i] := Y[i] + R[i];
      Q[i] := Q[i] + 3.0*R[i] - A*K[i];
   end;
   K_Calc;
   FOR i:= 0 TO 4 DO
   begin
      R[i] := B*(K[i] - Q[i]);
      Y[i] := Y[i] + R[i];
      Q[i] := Q[i] + 3.0*R[i] - B*K[i];
   end;
   K_Calc;
   FOR i:= 0 TO 4 DO
   begin
      R[i] := (K[i]-2.0*Q[i])/6.0;
      Y[i] := Y[i] + R[i];
      Q[i] := Q[i] + 3.0*R[i] - 0.5*K[i];
   end;
   K_Calc;
until ...
```

Unfortunately realistic input data often results in equations which are difficult or impossible to solve by the classical methods. The assumptions on which these methods rely are rarely verified in the field. They refer to theoretical representations of actual system components, and are made for the purpose of solving the resulting equations.

A case in point relates to accounting for energy dissipation in various processes. The classical method needs a form which maintains the linearity of the resulting differential equations ("DEs", from now on). If we want to account for dry friction with a threshold value and a further contribution proportional to a displacement or a power of the displacement and in phase with a velocity, we are in trouble. Add possibly the need to represent an arbitrary impressed force whose magnitude and timing may depend upon the value of any one of the other variables, and the classical methods become inadequate.

Classical solutions owe their unique popularity to the fact that we did not know how to treat more complicated equations. It is difficult to see the logics behind that argument. It is like loosing the door key when coming home in the dark and looking for it under the lamp post because that is the only place where there is light.

For most of those previously intractable or difficult cases, the advent of affordable and powerful computing power has opened possibilities by providing the means for practical numerical solutions. Instead of evaluating a formula resulting from a theoretical solution of linear DEs, values of the system variables and their derivatives are calculated as functions of an independent variable from a given set of initial conditions. These values can then be listed as output data, or plotted for visualisation. The forces included can account for any coupling between the variables, or any unorthodox non-linear form. If the DEs can be numerically integrated and we can input an initial state, we can "simulate" the consequent behaviour. Not only does it renders easy a task formerly difficult or impossible, but changing the values of parameters is instantaneous, and amending the format of force representations is just as simple, a great advantage over the classical solution.

The procedure on which this numerical solution rests is the numerical integration of DEs, a noted example of which is the refinement derived by S.Gill (Ref.1) to the general method of Kutta, often known as the Runge-Kutta method.

I shall attempt to give a simple description of that method. The independent variable can, of course, be anything but in many cases, and for the sake of this explanation, it will be the time. We choose a small interval of time, say h. The procedure consists in evaluating a number, usually four, of evermore accurate estimations of the values of the variables at the end of the time interval from their values at the beginning. For the first interval we use the system starting conditions, then we proceed step by step, the values of the variables at the end of an interval becoming the starting values for the next one.

Given the time, Y0, and four dependent variables, Y1 to Y4, we must evaluate them over each interval. This is done by calculating increments, K0 to K4, to apply to each of the four estimations within each interval. Listing 1 below lists some Turbo Pascal code which is part of the procedure. The basic relation for evaluating the Ks is:

```
        Ki = h * dYi/dt, i = 0 to 4.
```

Simplifications will result in most cases, and in particular, if Y0 is the time, dY0/dt = 1 and K0 = h. The size of h is easily determined. If h is halved without change in the results, then h size was satisfactory. Furthermore h size can be altered midstream, and can even be adapted to various phases of the process. Of course the smaller the value of h, the more calculations are executed and the slower is the simulation.

The Runge-Kutta method was derived originally for first order DEs, i.e. including no variable derivatives higher than the first. However it is readily extendable to systems of simultaneous first order DEs, and, since a higher order DE can be replaced by a corresponding number of first order DEs by introducing suitable auxiliary variables, the method is widely applicable.

Listing 1 shows code fragments of a *Turbo Pascal* program used to study the behaviour of a flat plate placed in an airstream for various positions of the centre of gravity and various values of the airspeed. The plate can move in the vertical direction and also rotate about a transverse axis. It is therefore a 2 degree-of-freedom system and the variables with the Runge-Kutta method are:

```
   Y0 : time,
   Y1 : up/down displacement of c.g.,
   Y2 : velocity in Y1 motion,
   Y3 : rotation angle,
   Y4 : velocity in Y3 motion.
```

Obviously the derivatives of three of these variables, and therefore the Ks, have very simple forms. They are dY0/dt = 1, dY1/dt = Y2, and dY3/dt = Y4. The remaining two, dY2/dt and dY4/dt, are accelerations, and, when written per unit mass or unit moment of inertia, have a familiar form:

```
acceleration = -(dissipative force)
-(elastic f.) + impressed f.
```

where each of the righthand side terms can include coupling with the other variables. In the short (6k) program from which Listing 1 is extracted, the dissipative force in dY2/dt (up/down) includes a threshold value and a term proportional to the modulus of displacement, the elastic terms are coupled with rotation, and the impressed forces include the effect of up/down velocity and that of rotation. In dY4/dt (rotation), dissipation forces have the form of viscous damping, the elastic forces are cross-coupled and the impressed moment results from the lift force in dY2/dt. This is evidently a very crude representation with no practical engineering merit, except to demonstrate the procedure. The program plots two phase plane graphs side by side on the screen, and the user can interrupt the simulation at any time. In spite of the model simplified representation, the behaviour of the system is clearly illustrated. The airspeed is varied from 20 to 100 m/sec, and "e",the distance of the c.g. behind the rotation axis is varied from 0.2 to 0.5 m. The system is stable through the whole speed range with e = 0.2, but unstable at the higher speed with e = 0.5 or more.

A further remark can be made about h. If the process studied is such that the terminal conditions are known instead of the initial ones, it is equally acceptable to proceed backwards using a negative h. This could be useful for instance to study a trajectory from the end point instead of the starting point, which may be unknown. It works just as well backwards!

I have written several short programs using either the original Runge-Kutta procedure or the Gill refinement on an V20 XT with 8087 co-processor in Turbo Pascal 5.5. Even on a slow machine the simulation speed is quite acceptable. I have coded a problem treated first in 1969 on a Digital Corporation Equipment PDP-10, and obtained completely identical results.

Reference

1: S.Gill, "A process for the step-by-step integration of differential equations in an automatic digital computing machine." Proc. Cambridge Phil. Soc., 47: 96–108 (1951) ❑

Keyboard Shortcut

by Ian Hinson

I bet you'd like a dollar for every time you've typed *.*. It can be quite a tricky key combination to type with one hand while the other is holding a mug of coffee.

Why not remap a single key do all three keystrokes for you? Inserting the following lines into your AUTOEXEC.BAT will make the F12 function key produce "*.*".

```
PROMPT $e[0;134;"*.*"p$e[1;
   36mF12 KEY remapped to "*.*″$_$e[0m
ECHO ON
ECHO OFF
```

The key definition is the part up to the "p" in the PROMPT statement. The remainder of the line simply puts a message on the screen.

The ECHO ON after the PROMPT statement is needed because prompt definitions are never given effect until the next prompt is issued, and that can happen only if the echo is turned on.

Your normal prompt definition, usually PROMPT $p$g, should come **after** the lines shown above.

The key remap is effective for any program that reads the keyboard via DOS and, in particular, the command line processor, COMMAND.COM. ❑

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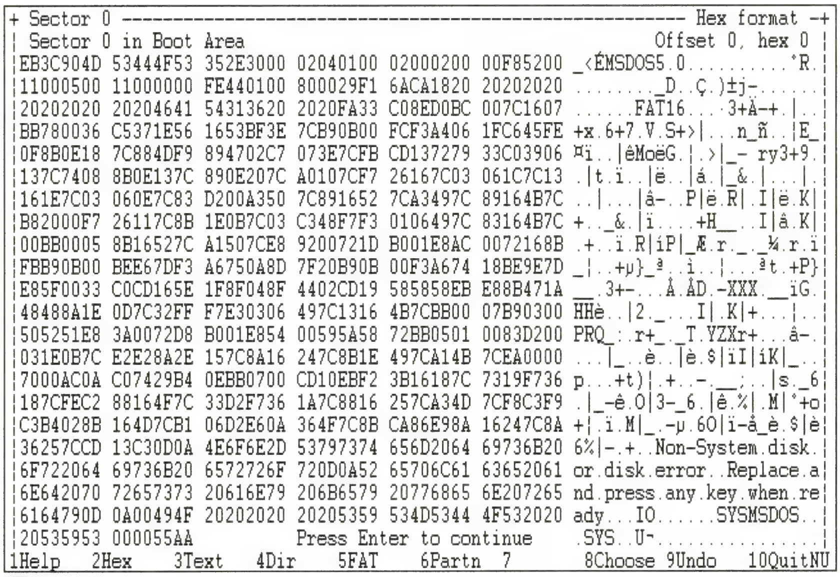
Hard Disk Recovery—Track 0 Bad

by John Carroll

Recently I was given an old Tulin MFM hard disk drive which had stopped responding to DOS. My system recognised it and was able to low-level format it, and FDISK also seemed to work successfully, but when I subsequently ran the DOS FORMAT command it couldn't "see" the disk. After a variety of tests I concluded that Track 0 was damaged. The Tulin Corporation is defunct, parts are not available, and several repairers said that the drive could not be rebuilt. With nothing to lose, I tried a little lateral thinking, as follows.

MS-DOS uses the first track of the primary DOS partition for boot sector information. By default, this is Track 0 of the disk. However, a disk can be configured to support multiple operating systems, each with its own partition(s). If the first partition is not assigned to DOS, then DOS will create its own boot record and FATs not in Track 0 but further into the disk. So I decided to make DOS use another (hopefully undamaged) track instead, by telling it that Track 0 was part of a non-DOS partition.



```
+ Sector 0 ----------------------------------------------------- Hex format -+
¦ Sector 0 in Boot Area                                      Offset 0, hex 0 ¦
¦EB3C904D 53444F53 352E3000 02040100 02000200 00F85200 _<ÉMSDOS5.0..........°R.¦
¦11000500 11000000 FE440100 800029F1 6ACA1820 20202020 ........_D..Ç.)±j-.....¦
¦20202020 20204641 54313620 2020FA33 C08ED0BC 007C1607 ......FAT16...·3+Ä-+.|..¦
¦BB780036 C5371E56 1653BF3E 7CB90B00 FCF3A406 1FC645FE +x.6+7.V.S+>|...n_ñ..¦E_¦
¦0F8B0E18 7C884DF9 894702C7 073E7CFB CD137279 33C03906 ¤ï..|êMoëG.¦.>|_- ry3+9.¦
¦137C7408 8B0E137C 890E207C A0107CF7 26167C03 061C7C13 .|t.ï..|ë..|á.|_&.|...|.¦
¦161E7C03 060E7C83 D200A350 7C891652 7CA3497C 89164B7C ..|...|â-..P|ë.R|.I|ë.K|¦
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¦48488A1E 0D7C32FF F7E30306 497C1316 4B7CBB00 07B90300 HHè..|2._...I|.K|+...¦..¦
¦505251E8 3A0072D8 B001E854 00595A58 72BB0501 0083D200 PRQ_:.r+_._T.YZXr+...â-.¦
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¦7000AC0A C07429B4 0EBB0700 CD10EBF2 3B16187C 7319F736 p...+t)¦.+..-.__;..|s._6¦
¦187CFEC2 88164F7C 33D2F736 1A7C8816 257CA34D 7CF8C3F9 .|_-ê.O|3-_6.|ê.%|.M|°+o¦
¦C3B4028B 164D7CB1 06D2E60A 364F7C8B CA86E98A 16247C8A +¦.ï.M|_.-µ.6O|ï-å_è.$|è¦
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¦6E642070 72657373 20616E79 206B6579 20776865 6E207265 nd.press.any.key.when.re¦
¦6164790D 0A00494F 20202020 20205359 534D5344 4F532020 ady...IO......SYSMSDOS..¦
¦20535953 000055AA           Press Enter to continue    .SYS..U¬...............¦
1Help   2Hex     3Text   4Dir     5FAT     6Partn  7       8Choose 9Undo    10QuitNU
```
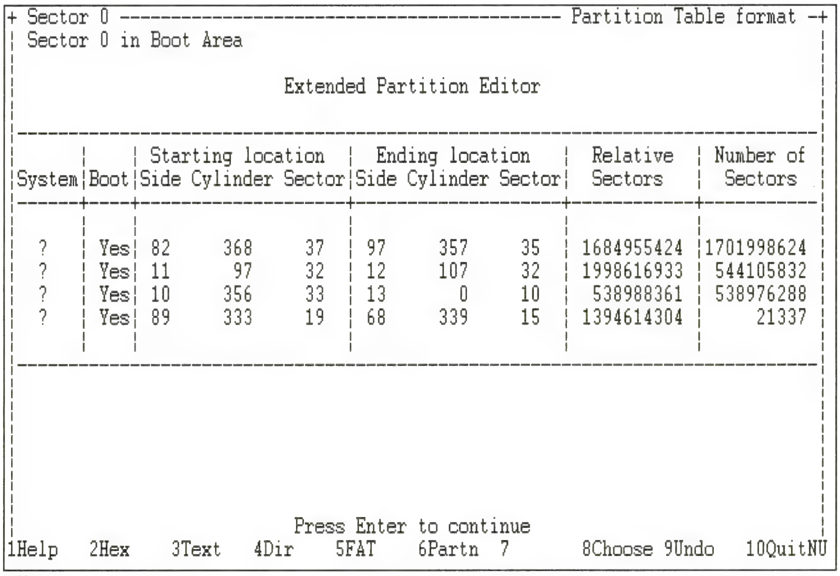

Figure 1



```
+ Sector 0 ----------------------------------------- Partition Table format -+
¦ Sector 0 in Boot Area                                                       ¦
¦                                                                             ¦
¦                          Extended Partition Editor                          ¦
¦                                                                             ¦
¦-----------------------------------------------------------------------------¦
¦      ¦    ¦ Starting location   ¦  Ending location    ¦  Relative  ¦ Number of ¦
¦System¦Boot¦Side Cylinder Sector¦Side Cylinder Sector¦  Sectors   ¦  Sectors  ¦
¦------+----+--------------------+--------------------+------------+-----------¦
¦      ¦    ¦                    ¦                    ¦            ¦           ¦
¦  ?   ¦ Yes¦ 82     368     37  ¦ 97     357     35  ¦ 1684955424 ¦1701998624 ¦
¦  ?   ¦ Yes¦ 11      97     32  ¦ 12     107     32  ¦ 1998616933 ¦ 544105832 ¦
¦  ?   ¦ Yes¦ 10     356     33  ¦ 13       0     10  ¦  538988361 ¦ 538976288 ¦
¦  ?   ¦ Yes¦ 89     333     19  ¦ 68     339     15  ¦ 1394614304 ¦     21337 ¦
¦      ¦    ¦                    ¦                    ¦            ¦           ¦
¦-----------------------------------------------------------------------------¦
¦                                                                             ¦
¦                                                                             ¦
¦                                                                             ¦
¦                                                                             ¦
¦                                                                             ¦
¦                                                                             ¦
¦                           Press Enter to continue                           ¦
1Help   2Hex     3Text   4Dir     5FAT     6Partn  7       8Choose 9Undo    10QuitNU
```

Figure 2

There was a problem of course—I don't have another operating system to set up as the first partition, and even if I did it would most likely have had problems with the bad track. The solution was simple. FDISK did work, and had created a partition—all that was necessary was to modify the partition table so that it didn't look like a DOS partition any more! And also to make that partition as small as possible, leaving room for DOS on the rest of the disk.

I tried it—it worked! I now have a usable spare hard drive, and have lost only about 1 MB out of 32 MB.

If you want to use this procedure, these are the steps to follow:

1. Do a low-level format of the damaged disk, using whatever method is appropriate. (I used the AMI BIOS Setup facility.)
2. With MS-DOS FDISK.EXE, create a single DOS partition of the smallest possible size (eg. 1%).
3. Using a low-level sector editor, change the partition table information recorded by FDISK. (I used the editor included in Norton Disk Doctor [NDD.EXE Version 4.5]—the following steps will vary slightly with other editors such as PC Tools.)

   a) Run NDD.EXE from the A: drive and select "EXPLORE DISK" from MAIN MENU.

   b) From "EXPLORE DISK" Menu, select "CHOOSE ITEM".

   c) From "CHOOSE ITEM" Menu, select "CHANGE DRIVE".

   d) From "CHANGE DRIVE" Menu, select the drive you want to reconstruct.

   e) You will be returned to the "CHOOSE ITEM" Menu, where you should select "SECTOR".

   f) At "SELECT SECTOR" Menu, enter "0" for both "STARTING SECTOR" and "ENDING SECTOR".

   g) You will be returned to the "EXPLORE DISK" Menu, where you should select "EDIT/DISPLAY ITEM". You will see a hexadecimal display similar to that in Figure 1.

   h) As indicated in the bottom line of the display (in Norton), press function key F6 to edit the Partition Table. A screen similar to Figure 2 will appear.

   i) Move the highlight to the first "?" in the "System" column. Use the spacebar to cycle through the operating system options. (Options that should appear are: ? DOS-12 DOS-16 EXTEND BIGDOS XENIX NOVELL PCIX CP/M BBT)

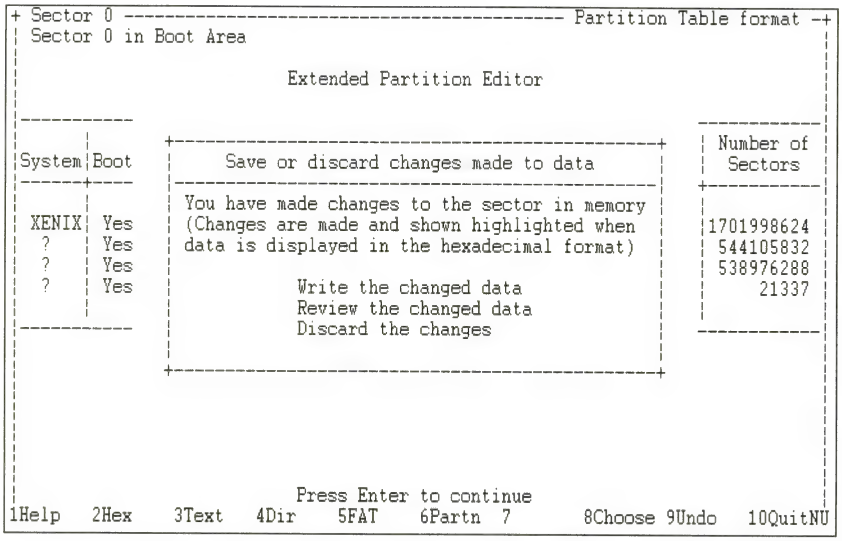
   j) Select an operating system which you are never likely to use—I chose XENIX. (**Do not select any of ? DOS-12 DOS-16 EXTEND**).

   k) A dialog box will appear as in Figure 3—confirm (Write) the change. At this stage, you may receive a warning that the data has not been written—ignore this message.

   l) You will be returned to the "EXPLORE DISK" Menu, where you should select "CHOOSE ITEM", change back to your original drive (A:), and then return to the MAIN Menu, and QUIT.

4. Once again FDISK the hard disk. Using FDISK Option 4, display the partition information. You should see the effect of your editing reported as a small non-DOS partition. **Never delete that partition or low-level format the disk unless you want to go through the whole process again!!!** (It would be a good idea to label the drive casing with this warning.)
5. Now use FDISK Option 1 to create a (new) DOS partition, and set it as active using Option 2.
6. After exiting FDISK and rebooting from a floppy, use MS-DOS FORMAT.COM to carry out a high-level format of the repaired drive. (If FORMAT still can't find the disk, it may be because the drive is more extensively damaged than just the first few tracks. If so, repeat the whole foregoing procedure, but making the initial partition 2% of the available space instead of 1%.)
7. If FORMAT is successful, you should now be able to transfer the system files from your boot floppy using SYS.COM, and then load other files using the COPY command.

Warning: The procedure described in this article is not to be used lightly, and will not necessarily work on every damaged drive! (In particular, it will not work unless there is an undamaged area on Track 0 sufficient to hold the partition table.) It is offered in good faith as a last resort for users who have "lost" the outlying tracks on a drive, but I can offer no guarantee that it will work, and I take no responsibility for the results. (Certainly, all that FDISKing and FORMATting will have destroyed any data you may have had on the drive.)



```
+ Sector 0 ----------------------------------------- Partition Table format -+
| Sector 0 in Boot Area                                                       |
|                                                                             |
|                         Extended Partition Editor                           |
|                                                                             |
|-----------                                                    -----------  |
|      |       +--------------------------------------------+   | Number of |
|System|Boot   |      Save or discard changes made to data    |  |  Sectors  |
|------+----   |--------------------------------------------|   +-----------|
|      |       | You have made changes to the sector in memory |  |           |
| XENIX| Yes   | (Changes are made and shown highlighted when  |  |1701998624 |
|   ?  | Yes   | data is displayed in the hexadecimal format)  |  | 544105832 |
|   ?  | Yes   |                                              |   | 538976288 |
|   ?  | Yes   |            Write the changed data            |   |     21337 |
|      |       |            Review the changed data           |   |           |
|-----------   |            Discard the changes               |  -----------  |
|              |                                              |               |
|              +--------------------------------------------+                 |
|                                                                             |
|                                                                             |
|                                                                             |
|                          Press Enter to continue                            |
1Help   2Hex    3Text   4Dir    5FAT    6Partn  7       8Choose 9Undo   10QuitNU
```

Figure 3

(**Note:** You may have noticed that the screen dumps are not consistent with the disk I describe—this is because the process was simulated later on a different machine, to illustrate this article. Also, the ASCII dump in Figure 1 has been cleaned up to remove some characters because of problems I was having printing out the screens.) ❑

More on CMOS Recovery

by Ian McDowell

Nigel Harris in December *PC Update* gave excellent guidance on the recovery of lost CMOS data. The CMOS chip holds the computer configuration information, without which the machine will not boot up from the hard disk.

After losing CMOS memory from time to time, for unknown reasons—no, not a flat battery—I adopted the following procedure.

Every computer should have an emergency bootable floppy disk nearby. It should contain the operating system files and certain others, including one that restores CMOS. Several restoration utilities are available such as in the VIRUSAFE package.

T. Mosteller's shareware 1989 CMOS RAM save/restore utility is a convenient one. Run CMOSRAM and a simple menu enables a user to:

- obtain information on CMOS
- save the existing configuration to a data file, CMOS.RAM
- write the information back to the chip in the event of boot failure and
- reset the CMOS clock.

So, boot up from the emergency floppy, write previously saved CMOS information back, and reboot the computer from the hard disk. This is the most common computer failure emergency the writer has had to cope with over the years.

An additional Mosteller utility, CHKCMOS.EXE, compares existing CMOS information with CMOS.RAM and makes appropriate comments.

I could not find the programs on the Melb PC BBS (our file finding feature leaves something to be desired) so I have uploaded them as CMOS.LZH.

The emergency disk should contain many other programs such as

- virus detection and removal
- boot sector
- FAT and partitition sector write-back facilities
- hardware diagnostics

But that is another matter—begin simply with CMOS salvation. ❑

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Xbase Programming — Functions

by Gary Taig

A year or two back I started a series of articles on Xbase Programming but the world fell apart and the icecaps melted, the floods came and the heat from the bushfires was just too much. Suddenly I had too many other things on which to concentrate and unfortunately, we didn't get past about Lesson 4 or 5. Oh well, what's a few months between friends. I won't promise a story every month, but we'll go very close.

This article started life as a message on the Bulletin Board and became long enough to warrant a bit of tidying up for *PC Update*. It's about the use of *functions* in programming. In this case, Xbase programming.

For those who don't know the word "Xbase", it began life several years ago when it was applied to the many languages designed around the dBASE standard. dBASE III published by Ashton-Tate was an extremely popular, and in those days powerful database development package. Thousands of people around the world learnt to use it. Some still use it.

Anyway, other companies released database development packages similar to dBASE and there came a time when the word "copyright" was mentioned. Those who were selling packages similar to dBASE and perhaps using words such as "dBASE Compatible" in their sales and advertising material, were suddenly faced with the possibility of legal action. One incredible development after another resulted in the US Courts finding that the dBASE language was earlier designed by another organisation. After that announcement the dBASE "language" was released into the public domain. However, in the meantime "Xbase" had become widely used by people referring to those "other" languages. It was dBASE, without the distinctive, lower case *"d"*.

Figure 1

```
Structure for database: C:\XBASE\CONTACTS.DBF

Field  Field Name  Type       Width
    1  NAME        Character     20
    2  FIRSTNAME   Character     15
    3  COMPANY     Character     30
    4  FIRST_CONT  Date           8
    5  NEXT_DUE    Date           8
    6  ADDRESS1    Character     20
    7  ADDRESS2    Character     20
    8  ADDRESS3    Character     20
    9  SUBURB      Character     30
   10  STATE       Character      3
   11  POSTCODE    Character      4
   12  MAIL_AREA   Character      3
   13  AHA_CODE    Character      4
   14  PH_AH       Character     10
   15  BHA_CODE    Character     10
   16  FAX_ACODE   Character     10
   17  PH_BH       Character     10
   18  FAX         Character     10
   19  NOTES       Memo          10
   20  PERSONAL    Logical        1
   21  CO_NOTES    Memo          10

** Total **                     257
```

So, when you see a tutorial on Xbase programming, and you own a copy of dBASE, FoxBASE, FoxPro, an early version of Clipper or any other compatible development system, it's for you. If you were fortunate enough to acquire a free copy of dBASE or FoxPro during one of our monthly meetings in the last twelve months and if you've played around a little bit but can't really get the hang of things, this could be just what you need.

Two members participating in a conversation on the BBS aroused my curiosity. I missed the message that started it but saw enough to realise that someone, somewhere, had too little an understanding of one of the most fundamental aspects of programming, the use of *functions*.

Before we get involved in the details I'll paint a scenario that fits the story. Much of this is invented but it will be close.

Harry *(not his real name)* had a dBASE data file containing at least one memo field. In that field he stored detailed notes on his sales prospects. Harry's message on the BBS included a line of program code that caused dBASE to print some of the data from the file and this caught my attention, we'll cover it in a moment.

The balance of Harry's file is immaterial at this stage but in order to be able to develop this lesson, I've designed a simple Xbase data file, CONTACTS.DBF *(Refer Figure. 1)*.

With that file structure containing one or more records, we can pick up the story where Harry announced a discovery. His message contained a line of code. We will get to that code shortly but in the meantime please be aware that even though I refer to it as "code", it does not necessarily have to be run from inside a program. In isolation it can be typed directly from the keyboard into your development package, as an instruction. With dBASE III, dBASE III PLUS or FoxBASE you type it at the DOT prompt. With other packages like Foxpro, you type it in the command window.

Firstly, make sure the data file is open by typing

```
USE CONTACTS
```

If you've just created the file and have no data in it, use the `APPEND BLANK` command to add some records and put some data into each record. Be sure to enter a few notes into the memo field named NOTES

Now we get to Harry's line of code. He had developed the following statement

```
LIST NAME, SUBURB, NOTES FOR ;
    ISBLANK(notes) = .F. TO PRINT
```

A "statement" or "expression" is a series of commands *(key words)* and operators. We'll cover *operators* later in this lesson. Your expressions can become quite complex but we'll cover that aspect in another lesson. By the time we reach the end of this lesson though, you will already see a little of the complexity one can easily develop in a simple program.

Anyway, Harry went on to say, *"...the above gives me a printed report on my current prospects along with all the notes I have entered concerning each one."*

True, it will. The expression that he typed was accepted, but there is a flaw in that instruction and this is where we get to talk about *functions*.

ISBLANK() is a *function*. In programs, *functions* return an answer of some kind; perhaps a value, perhaps TRUE or FALSE. A *function* is identified by the two braces tacked onto the end of the *key word* or if you like, the *function* name. Not all *key words* are *functions* though, don't let me confuse you here. A *key word* in most languages is a "reserved" word; one that you cannot use in any way other than how it's described in the manual.

CLEAR is a good example of an Xbase *key word*. It clears the screen and cannot be used for any other purpose.

Why the braces? They enable a *function* to accept one or more arguments. An argument is the "information" supplied to a *function*. That will become clear as we proceed.

Let's examine the *function and its argument* in isolation

```
   ISBLANK(notes)
```

NOTES is the name of our memo field and we have set up a situation where the *function* named ISBLANK() will act upon or use that memo field in the performance of its duty.

ISBLANK() returns TRUE if the memo *(or any other field)* is blank *(empty)*, and FALSE if the memo *(or other field)* is not blank *(not empty)*.

To put it another way; if the *function* served a different purpose and was named SOMEDATA() it might be designed to return TRUE if the field had "some data" in it, and FALSE if the field was empty. ISBLANK() just happens to work the other way around, returning TRUE when the field is EMPTY.

Note here that in Xbase programming, TRUE is written as .T. and FALSE is written as .F. but it's somewhat incorrect for Harry to include the following portion of code

```
   ".... for ISBLANK(notes) = .F."
```

although it works. It's wrong because ISBLANK() can ***never*** be .T. or .F. Instead, *the answer returned* by the function named ISBLANK(), is either one of TRUE or FALSE. Got it?

It's splitting hairs, yes I know, but if you can see it the way I'm trying to present it, your Xbase programming will take on a whole new dimension.

Any function that returns .T. or .F. is normally used in the following manner. We'll stay with ISBLANK() because that's our current example.

In plain English, (we call this sort of thing *"psuedo code"*) part of any program might read:

```
If the field is empty
   do one thing
else
  do a different thing
endif
```

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Now, that construction can be written in slightly different words, as follows:

```
if it is true that the field is empty
    do one thing
else (clearly it's not true)
    do another thing
endif
```

When we convert that into real program code, the function ISBLANK() is utilised in the following way

```
IF ISBLANK(memo field)
    * if the memo field is empty,
    * ISBLANK() returns .T. and our line
    * of program code evaluates to .T.
    * causing commands here to be
    * executed.
ELSE
    * it didn't evaluate to true
    * therefore the condition must be
    * false and we execute commands
    * after the ELSE statement
ENDIF
```

Earlier we mentioned another part of the Xbase language, *operators*.

Operators are combined with commands and/or *key words* to form what is known as an *expression*, or *statement*. (Note: the same or similar *operators* exist in just about every programming language)

A simple illustration of this is

```
    .F. = .NOT. .T.
```

That line reads, ***false is not equal to true***, or more precisely, ***false is equal to not true***. It doesn't matter how you say it or write it, the result is exactly the same.

The *operators* in the above expression are the equals sign and the .NOT.

The period (DOT) on each side of the "NOT" is absolutely essential in dBASE III, and was also mandatory in early versions of FoxBASE but Foxpro allows you to leave them off. Then it reads

```
    .F. = NOT .T.
```

You **must** include the periods beside the "T" and the "F". The reason is because T or F without the periods can be used as names for memory variables.

The periods make them unique and clearly identify them as TRUE and FALSE

Another form of .NOT. is the *bang* command (the exclamation mark) "!". Some packages don't allow use of the *bang* command. Test it on your particular package. Anyway, using it here we can change the above example to read...

```
    .F. = ! .T.
```

or, to do it another way

```
    .F. != .T.
```

Although if you type that, exactly as it is at the DOT prompt or into the command window, you're likely to get an error message because it's not a valid instruction.You are not yet telling your software to do anything.

If you really want to see something interesting, type the following lines and press {enter} after each. See what is displayed on your screen. *Be sure to include the question mark though, otherwise you'll get that error message.*

FoxPro users

```
    ? .T. != .F.
    ? .F. = .F.
    ? .T. = .F.
```

dBASE III users

```
    ? .T. = (.NOT. .F.)
    ? .F. = .F.
    ? .T. = .F.
```

You should have seen three answers, telling you whether each expression evaluated to .T. or .F. Experiment with some other combinations.

The question mark is the Xbase "command" that tells your package to send something to the current output device, usually the screen, or if you have an "alternate file" open, it writes to that file.

We are touching here on what are known as **Truth Tables.** It is TRUE that FALSE=FALSE. It is TRUE that 1=1. It is FALSE that 3=4, and so on. The **truth** or otherwise of an expression is used to divert program flow and you will see more of that and how it's applied, in a moment.

Taking you back to Harry's command, if we apply the .NOT. operator to ISBLANK() it would then read:

```
    LIST NAME, SUBURB, NOTES FOR ;
    .NOT. ISBLANK(NOTES) TO PRINT
```

It's wise *(often it's absolutely imperative)* to put the NOT and the commands to which it refers, inside braces, so that the components of the expression are evaluated in the correct order. The line of code would then read

```
    LIST NAME, SUBURB, NOTES FOR ;
    (.NOT. ISBLANK(notes)) TO PRINT
```

It's a convoluted and perhaps confusing example because of the NEGATIVE aspect of ISBLANK() but essentially means, send the contents of the designated fields of the current record to the printer, if the ***entire expression*** inside the outer braces, evaluates to TRUE

Confused yet? Here's a better example in *Figure 2*. When reading this, remember that comments made for humans are preceeded by an asterisk. Note also that we employ another *function* here, the EOF( ) *function*. That tells us if the record pointer has reached the end of the file. Can you guess what it returns?

Examine the line that reads

```
    DO WHILE .NOT. EOF(prospects)
```

Figure 2

```
* PROGRAM: NONOTES.PRG
* Purpose: To find the number of prospects for whom
* we have NOT made any notes.
* Firstly, initialise a memory variable to keep count
got_no_notes = 0

* open the file and process every record
USE contacts ALIAS PROSPECTS

DO WHILE .NOT. EOF(prospects)
    * if the memo field is empty, increment the count
    IF ISBLANK(notes)
        got_no_notes = got_no_notes + 1
    ENDIF
    * Done. Now jump to next record
    SKIP
ENDDO
* if the count variable is now greater than Zero
IF got_no_notes > 0
    * display the result
    ? "File has "+ ALLTRIM(STR(got_no_notes))+;
                    " records with no notes"
ELSE
    ? "Wow! I have notes on all my prospects"
ENDIF
```

I'm sure that by now you'll understand the usage of the *function* named EOF( ). The argument we supply to it is the ALIAS for CONTACTS.DBF. The EOF() *function* checks whether the record pointer is at the end of that file as we mentioned earlier, then it returns either .T. or .F. to the calling program.

So, taking the above line apart and writing it in a different manner we could say (in a kind of *"psuedo code"*)

```
DO WHILE the EOF() function does
NOT return TRUE
```

or, to say it another way

```
DO WHILE it is NOT TRUE that the
record pointer in PROSPECTS has
reached the end of file.
```

Goodness me, sometimes the program code is easier to write and to read than is the spoken word, isn't it. However, I'm sure you have the general picture.

Now For The Real Lesson

Firstly, another very important point. If you are still using dBASE III PLUS or any other package that does not support *"User Defined Functions"*, from here on you can only read about what's happening. The following exercises will not work for you.

We'll convert our simple program into a *function* by adding another line, telling it to **return** a **value** to a calling program. The program now reads as follows

```
USE contacts ALIAS PROSPECTS
DO WHILE .NOT. EOF(prospects)
   IF ISBLANK(notes)
      got_no_notes=got_no_notes + 1
   ENDIF
   SKIP
ENDDO
RETURN got_no_notes
```

Having done that, we call our new *function* named NONOTES.PRG in this way. Note, we are not supplying any *arguments* to our *function* at this stage. Also note that it will return a ***numeric*** value.

```
* 1. assign the value returned by
* NONOTES() to a new variable.
* We will name it "missing"
missing = NONOTES()
* 2. display the returned results
? "We are missing notes for "+ ;
ALLTRIM(STR(missing))+" prospects"
```

ALLTRIM( ) and STR() are two *functions* you will use quite often. (On page 42 I've given you the alternatives to ALLTRIM( )).

STR( ) converts a numeric value to a character string and ALLTRIM( ) trims leading and trailing spaces off any character string *argument* we supply.

Say, exactly what *argument* are we supplying to ALLTRIM() in the above example? Yes, we are giving it the *results* returned by **STR(missing).** This method of programming is known as ***nesting*** *functions* and you can nest *functions* quite happily until you reach the limit placed on the length of an expression. That limit is set down by your particular software package.

Back to our *function*. Another way to do it, making the answer **positive**, would be to return the number of prospects for whom you do have notes. Instead of returning the value contained in "got_no_notes", do it this way. Subtract that value from the total number of records. The record count is a numeric value returned by yet another Xbase function named RECCOUNT( ).

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Let's comment out the last line with an asterisk and replace it with a new line

```
USE sales ALIAS PROSPECTS
DO WHILE .NOT. EOF(prospects)
    IF ISBLANK(notes)
        got_no_notes=got_no_notes + 1
    ENDIF
SKIP
ENDDO
* RETURN got_no_notes
RETURN (reccount() - got_no_notes)
```

Now we're able to say...

```
? "We have notes on "+ ;
    ALLTRIM(STR( nonotes() ))+ ;
    " prospects"
```

Before we finish I will show you the most efficient way of doing all this. We'll name our *function* GOTNOTES.PRG and make provision for some *arguments*. This will enable us to call GOTNOTES.PRG with virtually any filename. The *arguments* will be supplied inside the braces; they will tell GOTNOTES which file to open and the answer we require.

We will call GOTNOTES with our file named CONTACTS.DBF and ask it to return the number of prospective clients for whom we do have notes.

```
answer = GOTNOTES("contacts.dbf", ;
"some")
* display result on screen
? answer
```

Now follows our new *function*. Note, you may have to use *macro substitution* to open the file, it will depend upon the capability of your particular package.

```
* Program GOTNOTES.PRG
PARAMETERS whichfile,whichanswer
got_no_notes = 0
* dBASE III and Foxbase method
* using macro substitution
USE &whichfile ALIAS prospects
* FoxPro method
USE (whichfile) ALIAS prospects
DO WHILE .NOT. EOF(prospects)
    if ISBLANK(notes)
        got_no_notes=got_no_notes + 1
    endif
    SKIP
ENDDO
```

The next part of GOTNOTES.PRG establishes a variable named `reply` in which we store the requested answer. In order to establish the answer we use one of the **parameters** received by our *function* when it was called. That is the standard terminology. When we **call** a *function* we can supply it with some *arguments*. However, within the *function* those *arguments* become known as **parameters.**

```
IF whichanswer = "some"
    IF got_no_notes = 0
        * we don't have any notes
        reply = 0
    ELSE
        * we do, return positive value
        reply =(RECCOUNT(prospects)-;
                got_no_notes)
    ENDIF
ELSE
    reply = got_no_notes
ENDIF
* close file and return the result
USE
RETURN reply
```

We can now employ our function, known as a **User Defined Function** in the following manner. Note: If your package does not support ALLTRIM() you must use LTRIM(RTRIM())

```
* assign to a variable named show.
show = "We have notes on "+ ;
ALLTRIM(STR(gotnotes("sales.dbf", ;
                "some"))) +" prospects"
* display the resulting variable
? show
* or alternatively we could say
show = "We have " + ;
        ALLTRIM(STR(gotnotes( ;
        "sales.dbf","none")))+ ;
        " without notes"
? show
```

What Have We Learnt?

- A *function* returns an ANSWER of some kind to the calling program, or to the console (screen).
- The answer returned by a *function* can be supplied as the argument to another *function*. This is known as nesting.
- In packages that support "User Defined Functions" we can use any program (any .PRG file) to return an answer to another program or to the screen.

You have lots of things with which to experiment. If you get into trouble, read the manual carefully and try to work out the answer. If you're still in trouble, write to me c/o the Melb PC Administration Office, *(postal address on page 3)* or fax a full description of your problem direct to my office on (03) 700 7700.

Enjoy! □

The Keyboard Prayer

Our program who art in memory, Hello be thy name; thy Operating System come, thy commands be done, on the Printer as they are on the Screen. Give us this day our daily Data, and forgive us our I/O errors, as we forgive those whose logic circuits are faulty; and lead us not into frustration, but deliver us from Power Surges; for thine is the Algorithm, and the Application, and the Solution, looping for ever and ever.

Return.

(A reading from "The Binary Bible" by Saint $ilicon)

Copying Disks of Different Size

by Tom Coleman

DISKCOPY makes a sector by sector copy of the data on a disk and can run into all kinds of problems doing that. For example, if the *Target Disk* has a bad area or bad sectors DISKCOPY will insist on writing to them if the *Source Disk* has data in that location. The result is frequently an error message, "Bad Write".

Disks with odd sized or missing sectors always fail, too. These disks are usually interfered with by the manufacturers as a form of copy protection.

If the source disk has a bad sector then DISKCOPY faithfully makes a bad sector in the same place on the target, regardless of the condition of the media.

Some copy techniques, usually associated with the machinery that makes the copy, will only format the tracks containing data. It saves time copying by missing out blank tracks. That causes mass confusion to DISKCOPY.

Generally speaking, you can only DISKCOPY from and to identical disks, but there is a technique to DISKCOPY from a 5.25-inch to a 3.5-inch under some circumstances.

It applies to only those of us who are using a 3.5-inch and a 5.25-inch drive using the same controller card. It will also be more successful on XTs than ATs.

Generally, if you are using one controller card, the card sees both disks as being the same and you must add `DEVICE=DRIVER.SYS /D:1` (or some other parameters, depending on drive and desired size) to CONFIG.SYS to get it to see the drive as a different size.

By removing the DRIVER.SYS line from CONFIG.SYS the computer thinks both disks are the same size and DISKCOPY works just fine.

You finish up with a 360 kB, 3.5-inch disk with 40 tracks and 9 sectors per track ***and which*** will run in any other 3.5-inch drive.

If you have an AT or 386 the drive type is specified in CMOS and is read at boot up. To avoid an error message make the drive size NOT INSTALLED. If that does not work, then this method may not work for you.

The technique works well between 360 kB and 720 kB disks and I understand that, with a bit of luck, it will work between 1.2 MB and 1.44 MB disks.

I have not tried, but it should work from a RAM Disk provided the disk has the correct sectors and tracks.

Have a go. It gives you a feeling of omnipotence making DOS do things it was not intended to do. It's a mental rasberry to the people who inflicted DOS on us. ❑

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Computer Terms Defined

Part 5

Hard disk interface standards:
ST506/ 412—A serial hard disk interface standard developed by Seagate Technology and used for most XT and AT hard disks. Maximum data transfer rate is 5 megabits/sec.
IDE—(Integrated Drive Electronics)
An IDE hard disk has the controller functions on the drive itself and instead of connecting to a controller, it attaches directly to the motherboard. Data transfer rate is about 7.5 megabits/sec.
ESDI—(Enhanced Small Disk Interface) a standard developed by a consortium of 22 disk drive manufacturers. The ESDI provides for a maximum data transfer rate to and from a hard disk of 10 megabits/sec.
SCSI—(Small Computer System Interface) a standard developed by Shugart Associates and approved by ANSI. The parallel SCSI uses a 50-pin connector and permits multiple devices to be daisy chained. Data transfer rate: Up to 32 megabits/sec.

See also: ESDI, SCSI, ST506 and ST412, ANSI

Hard disk partition: Partitioning divides a single physical hard dsk into multiple logical partitions. Hard disks are divided into partitions in a circular fashion. For example, a drive's first partition might extend from cylinder zero through 299, with the second partition beginning on cylinder 300 and extending through 599. This circular partitioning is most efficient since it minimises the disk head travel when accessing data within a single partition. The partitions on a drive, even if there's only one, are managed by a special sector called the partition table, which is located at the very beginning of every hard disk. It defines the starting and ending locations for each partition. Each partition on a hard disk is blind to the existence of any others. By universal agreement, the operation of software inside a partition is completely contained within the bounds of that partition.

See also: 32-MByte Barrier, Hard disk, DOS

Hard disk sector interleaving: The information stored on a floppy or hard disk is arranged in a series of concentric circular paths called tracks. A single track on a standard IBM-compatible disk contains approximately nine thousand bytes of data. But since data is usually accessed in much smaller chunks, each track is divided into smaller sections called sectors, 512 bytes long. Think of a pie which has been cut into seventeen identical, and numbered slices. When we read the information contained in sector one of the current track, we then also need to read the next sector, number 2. However, by the time sector 1 has been moved into our computer, the beginning of sector 2 has already passed under the read/write head. So we must wait for the disk to rotate once around to deliver sector 2. This problem was resolved by spreading the sequentially numbered sectors out around the disk. Instead of placing sector 2 immediately after sector 1, sector 2 could be placed a few sectors later. This sector staggering is known as sector interleaving.

See also: DMA, Cluster, Sector

Hardware: The physical equipment and components in a computer system are referred to as the hardware. Examples of microcomputer hardware: printer modem keyboard math coprocessor display screen hard disk scanner floppy disk plotter power supply tape drive memory chips.

See also: Software, Peripheral device

Head crash: When the read/write heads of a disk drive come into contact with the magnetic surface of a disk platter, you have a head crash. A head crash is one of the most dreaded types of system failures because it not only causes lost data but also damaged hardware. A head crash is usually caused by some sort of disk contamination or when the equipment is accidentally jolted.

See also: Crash, Disc or Disk

Heap: The term heap is often used by programmers to refer to the portion of memory that is available after an application has been loaded. The size of this chunk of memory may change as a program executes. It is the responsibility of the operating system to keep track of the location and size of all the free chunks of memory within the heap and whether or not they are busy. Although DOS's memory management is adequate for most needs, it is afflicted with one problem: fragmentation. This happens when a number of memory blocks have been allocated and freed in a random fashion. This poor memory management could easily get you into a heap of trouble.

See also: Memory, Fragmentation

Helical-scan recording: The technology that has vastly increased the capacity of compact tape drives is called helical-scan recording. Originally invented for use in broadcast systems, helical-scan recording has been used in data storage systems since the mid 1970s. Both longitudinal and helical-scan recording technologies rely on magnetism to record data on back-up tapes. The basic differences between the two are the pattern in which data is recorded and the positioning of the heads used to read, write, and erase the data. Conventional longitudinal recording records a track of data straight across the width of a single-track tape, limited in size to the width of the tape (quarter inch). Helical-scan recording packs more data on the tape by positioning the tape at a 5-degree angle to the recording heads. Each data track is a 3 inch long diagonal. The magnetic tape used in helical-scan recording is of high quality.

See also: QIC, Quarter inch cartridge tape, Backup, Streaming tape

Hexadecimal: The hexadecimal numbering system has 16 as its base, as contrasted with the decimal system that has a base of 10. Hexadecimal refers to whole numbers in positional notation with 16 as the base. The first ten digits are represented by 0 through 9, and the last six digits represented by A, B, C, D, E, and F. Computer memory addresses are conveniently expressed in hexadecimal notation since the word length is a multiple of four. Four bits can be expressed with one hexadecimal digit. For example, 101100101 binary is B287 in hexadecimal notation. A hexadecimal number is the 1-byte equivalent of an EBCDIC character.

See also: Binary

High-level language: A programming language, such as COBOL or FORTRAN, that is not dependent upon the machine language of a computer, requires a compiler to translate it into machine language, and has been designed to allow the use of words similar to those in the English language, is called a high-level language.

See also: Low-level language, Computer languages

Home computer: A home computer is a type of microcomputer for use in the home. It is a personal computer, moderately priced and intended for such activities as home management, education, record keeping, programming, telecommunications, and entertainment. There is a wide variety of software available designed for home use to help manage and organise the household, such as checkbook balancing, stock portfolio accounting, cookbook recipes, personal calendars, and others. The number of home entertainment and educational programs continues to increase and improve at an alarming rate.

See also: Microcomputer, PC, Personal Computer, Laptop computer

Hypertext software: The idea of hypertext software was first conceived in the mid-1960s by computer scientist Ted Nelson. The strict theoretical vision of hypertext proposes that every piece of text, every word, be treated as a linkable element of an information system. Huge amounts of data can be accessed and linked with a few key words or data associations. Hypertext software today supports not only links between text, but also between graphical, video, audio, and most importantly, executable program files in a hypertext environment to provide a robust multi-media database. Apple Computer's HyperCard was the breakthrough product that gave hypertext much of its well deserved acclaim.

See also: Software

IBM-compatible: Microcomputer hardware and software can both be described as being IBM-compatible. It is a general term sometimes interchanged with DOS-compatible. When referring to a computer, DOS compatibility means software that will run on an IBM PC and will run properly. When discussing a plug-in board, such as a memory expansion board, it means the board will work in an IBM computer. However, devices and software may be IBM-compatible but not always compatible with each other.

See also: DOS, Computer, Software, Hardware

Icon: An icon is an image, a figure, or a representation of an object or a process. With some software programs, icons appear on the screen as small symbols that can simplify access to another program, or a certain command, or data file. Icons act as pointers. For example, a wastebasket icon may represent the command to delete a file. The process is activated by moving the cursor onto the icon and pressing a mouse button or a certain key on the keyboard. The use of icons and a mouse as a type of graphical interface between man and machine is referred to as an object-oriented interface.

See also: Cursor, Emoticon, GUI, Graphical User Interface, Mouse

IDE, Integrated Drive Electronics: IDE is a hard disk drive standard interface for microcomputers. It appeared in 1989 as a low-cost answer to two other standard hard disk interfaces, ESDI and SCSI. The distinguishing feature of the IDE interface is that it incorporates the drive controller functions right on the drive. Instead connecting to a controller card, an IDE drive attaches directly to the motherboard. IDE drives offer a data transfer rate similar to the RLL ST506 type of drives, or about 7.5 megabits per second.

See also: ESDI, SCSI, ST506 and ST412, ANSI

Indexed Sequential Access Method (ISAM): ISAM is an acronym for Indexed Sequential Access Method. It is a procedure for storing and retrieving data from a disk file. When the programmer designs the format of the file, a set of indexes is created which describes where the records of the file are located on the disk. This provides a quick method of retrieving the data, and eliminates the need to read all the data from the beginning to locate the desired information. The indexes can be stored as part of the data file or in a separate index file.

See also: Random access, Sequential access

Instruction: Programming languages have instruction sets, the complete listing of the instructions available to the programmer. An instruction is a discrete step or statement in a computer program that tells the computer to do something. It can also identify data if required.

See also: Mnemonic, Computer languages, RISC Technology, Syntax

Ink jet printer: An ink jet printer is simply a printing device that sprays one or more colours of ink onto the paper. Ink jet printers are not nearly as popular as dot matrix printers but ink jet technologies are maturing and producing output quality approaching that of a laser jet printer.

See also: Laser printer, Dot matrix printer

Integrated Circuit: An integrated circuit is a complete electronic circuit contained on a minute chip of silicon. Integrated circuits may consist of only a few transistors, capacitors, diodes, or resistors, or thousands of them. They are generally classified according to the complexity of their circuitry, and the approximate number of circuits on the chip.
SSI—Small Scale Integration, 2–10 circuits
MSI—Medium Scale Integration, 10–100 circuits
LSI—Large Scale Integration, 100–1 circuits
VLSI—Very Large Scale Integration, 1–10 circuits
ULSI—Ultra Large Scale Integration, over 10 circuits.

See also: Chip, Semiconductor, PCB, Printed Circuit Board

Integrated Services Digital Network (ISDN): ISDN is an international telecommunications standard that allows a communications channel to simultaneously carry digital data as well as voice and video. Microcomputers can communicate over ISDN at speeds up to 64, bits per second using existing telephone wires but without a modem. An adapter card similar to a network interface card is needed. Today, ISDN only exists in a few cities but will spread quickly because it is of particular interest to the banking and financial services, as well as computer and communication firms. The government and the petroleum industry are also ISDN boosters.

See also: Modem, Network interface card

Interactive: The term interactive, when referring to a computer program or system, indicates that the program asks questions of the user and then takes action based on the response.

See also: Computer program

Interpreter: An interpreter is a translator program for a high-level language that translates and executes the program at the same time. The program statements which are interpreted remain in their original source language, the way the programmer wrote them. That is, the program does not need to be compiled before execution. Each program statement is translated into machine language and executed or processed one by one until the program is finished. Interpreted programs run slower than compiled programs and must always be run with the interpreter loaded in memory. BASIC and dBase are examples of interpretive languages.

See also: BASIC, High-level language, Compiler, Execution, REXX

Interrupt: A temporary halt or suspension during the execution of a task, during which control is transferred to the operating system, is called an interrupt. An interrupt can be caused by internal or external conditions such as a signal indicating that an input/output device has completed the transfer of data. A computer's CPU has built into it the ability to be interrupted, combined with a convenient way of putting the task that's been interrupted on hold while the interrupt is being processed. Modern computers such as personal computers, which are designed to use interrupts, are called, in the terminology of circuit designers, "interrupt driven". An armed interrupt accepts and holds the interruption signal while a disarmed interrupt ignores the signal.

See also: BIOS, CPU, Central Processing Unit

IRQ, Interrupt Request: Interrupt request lines are physical connections between external hardware devices and the interrupt controllers. When a device, such as a floppy controller or a printer needs the attention of the CPU, handshaking signals are sent back and forth until a task is completed. On the PC and XT IBM-compatible systems, there are eight IRQ lines numbered IRQ0 through IRQ7. On the AT and PS/2 systems, there are sixteen IRQ lines numbered IRQ0 through IRQ15. In a particular system, the goal is to configure expansion boards so that each board has its own IRQ line. If you have two serial ports on your system, you know that IRQ3 and IRQ4 are taken.

See also: Interrupt

ISO, and its OSI: The International Standards Organisation, based in Paris, develops standards for international and national data communications. The U.S. representative to the ISO is the American National Standards Institute, or ANSI. In the early 1970s, the ISO developed a standard model of a data communications system and called it the Open System Interconnection model. Consisting of seven layers, it describes what happens when a terminal talks to a computer or one computer talks to another. This model was designed to facilitate creating a system in which equipment from different vendors can communicate. The other data communication models are IBM's System Network Architecture (SNA) and Digital Equipment's DEC Network Architecture (DNA), which both predated the OSI model.

See also: ANSI, CCITT, OSI Model, TRON Project

Joystick: A joystick is an electromechanical input device with a vertical lever, pivoted so that it may be manipulated within 360 degrees. It provides positional information about the movement of the cursor on a video display screen. The application program that is designed to receive input from a joystick, responds by moving a cursor on the screen in the same direction as the movement of the joystick lever. Joysticks are connected to a computer with a cable and are primarily used to play video games.

See also: Cursor, Light pen, Mouse, Trackball

Jumper or shunt: Often on Printed Circuit Boards the designer will allow the board to be set-up in a variety of ways depending on the particular needs of the user. This is accomplished by placing a pair of jumper pins in the circuit. If a small plastic-covered metal clip is placed over the open pair of pins, the circuit becomes closed. The small plastic-covered metal clips are properly called shunts but are often referred to as jumpers.

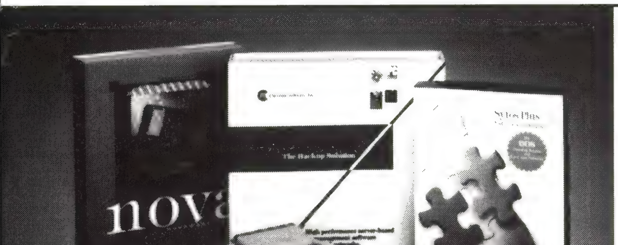
See also: PCB, Printed Circuit Board

Justified, left or right: To right justify information is to place data or text in the rightmost position of a field or document so that the characters are aligned to a rightmost column position when read or printed. A word processing document that has been printed or displayed so that the characters are evenly aligned along the right side border is said to be right justified. The common practice of printing information whether it be a letter, a document, or a book, is to align the characters on the left border, left justified.

See also: Word Processing

The Kermit Protocol: Kermit is a protocol designed for transferring files between microcomputers and mainframe computers. It was developed by Frank DaCruz and Bill Catchings at Columbia University in New York and is widely accepted, especially in the academic world. Kermit was named after the fuzzy, green talking frog of Jim Henson's "The Muppet Show". There are both public domain, and copyrighted Kermit programs that not only include the protocol but are complete programs in themselves offering the communication functions needed for the particular machine on which they are running. The complete Kermit protocol manual (about 100 pgs.) and the source for various versions is available from: Kermit Distribution, (212) 854-3703 Columbia University Center for Computing Activities 612 West 115 Street, New York, NY 10025

See also: Protocol, Xmodem, Ymodem, Zmodem



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Keyboard: A keyboard is an input device used like a typewriter to input data to a computer system. Keyboards have keys or buttons labelled with alphabetic, numeric, and special characters, such that when a key is depressed, the corresponding character code is transmitted to the computer program waiting to receive it. An Enhanced Keyboard is one that contains the ten or twelve function keys across the top and a keypad on the right. Keypad A keypad is an input device with buttons like a typewriter but a keypad only consists of the numbers and some special function keys, no alphabet keys. When the operator actuates one of the buttons, a corresponding code is transmitted to the computer. Keypads can be found as separate input devices or, most often, added to right side of enhanced keyboards.

See also: QWERTY Keyboard, Dvorak Keyboard, Maltron Keyboard

Kilobyte: One kilobyte is 1024 bytes (2 to the 10th power). "Kilo" is a binary analogue to the decimal unit "thousand". The size of memory in a microcomputer is measured in kilobytes, for example, 256 kB, 512 kB, 640 kB. Of course, 1024 kB equals 1 Megabyte (MB).

See also: Byte, Megabyte, Gigabyte, Terabyte

LAN, Local Area Network: When two or more computers are linked together for the purpose of sharing information and/or peripheral devices, a network is created. When the network is confined to a geographically restricted area, such as within the same building or perhaps on a college campus, it is referred to as a Local Area Network. There are three types of data transmission media used on most of today's LANs: a twisted-pair of wires, coaxial cable, and the newest, fibre optical cable. There are also three basic types of LAN topologies in use today: the ring, the star, and the bus or line.

See also: Fibre Optics, Zero-slot or RS-232 LAN

Laptop computer: A laptop computer is a type of microcomputer that is designed to be a self-contained unit, lightweight, and easily portable. Laptop computers are often battery powered with re-chargeable batteries. They can also be operated from an external power source. All laptops have the keyboard and some type of video display built-in. They also are equipped with diskette drives and often offer hard drives as an option. Laptop computers were popularised by Radio Shack's Model 100, which was introduced in 1984.

See also: Microcomputer, LCD, Desktop computer

Laser printer: The laser printer is a peripheral device for the output of data from the computer, one page at a time rather than a character or a line at a time. The laser printer is a combination of an electrostatic copying machine and a computer printer. The output data from the computer is converted by an interface into a raster feed, similar to the impulses which a TV picture tube receives. The impulses cause the laser beam to scan a small drum which carries a positive electrical charge. Where the laser hits, the drum is discharged. A toner, which also carries a positive charge, is then applied to the drum. This toner, which is fine black powder, sticks only to the areas of the drum which have been discharged. As it rotates, the drum deposits the toner onto a negatively charged sheet of paper. Another roller then heats and bonds the toner to the page. The output, the printed page, is typeset quality, near perfect.

See also: PostScript, Dot matrix printer, Daisy wheel

LCD, Liquid Crystal Display: An abbreviation for Liquid Crystal Display, an LCD is a display using liquid crystal sealed between two pieces of glass and polarisers then activated by an external light source to form the various characters, as on a digital watch or portable computer. Some LCD monitors depend on the reflection of ambient light to present an image on the screen; others increase readability by supertwisting and backlighting the screen. The most promising type of LCD is the recently developed active-matrix or thin-film transistor (TFT) LCD. Within a few years, we should see 9 and 11 inch advanced-matrix LCD monitors, monochrome and colour.

See also: Monitor, Video Display Technology, Laptop computer

LED, Light Emitting Diode: An abbreviation for Light Emitting Diode, an LED is a semiconductor diode that emits light when a current is passed through it and is used for alphanumeric displays on electronic devices such as calculators.

See also: Semiconductor, Alphanumeric

Light pen: A light pen is a hand-held electrical device with a light sensitive probe or stylus, connected to the computer's graphics adapter board by a cable to send electron beams to the adapter. They are used for writing or sketching on the screen of a video display and provide input to an application program. A light pen can be used by an operator as a pointing device tool for making menu selections presented on the video display screen. A light pen is sensitive to receiving light as opposed to a flashlight which shines light. Light pens are not widely supported by software applications.

See also: Mouse, Joystick, Cursor, Trackball

Linker: A linker is an executive program that connects different program segments so that they may be combined to form one executable program. A linker program often can combine compiled object modules and assembled routines together, from different programming languages, to create a single program.

See also: Assembly language, Compiler

Linpack: Linpack is a benchmark test program written in FORTRAN and used to measure performance of a computer system in solving dense systems of equations. It consists of a high percentage of floating point arithmetic operations. As it executes, it solves one hundred equations with one hundred unknowns. Since most of the work is done in a single subroutine, the Linpack test is mostly a measure of localised FORTRAN system performance or the compiler's efficiency. Linpack tests are often executed both in single precision and double precision to show the performance of a math coprocessor chip. The results should not be taken as a general measure of system performance. Jack Dongarro, the author of the Linpack program acts as the single point of contact for source, updates, and results from the Linpack.

See also: Benchmark, Whetstones, Dhrystones, MIPS, MFLOPS, FORTRAN

LISP: An acronym for LISt Processing, LISP is a high-level programming language primarily designed to process data consisting of lists. LISP is especially well suited for text manipulation and analysis. It is a popular language used for solving artificial intelligence problems. A LISP machine is a computer designed specifically for artificial intelligence applications and especially designed to run LISP. LISP was introduced in the early 1960s by John McCarthy. Along with PROLOG, it is one of the most popular AI languages. Common LISP is a dialect or subset of LISP that is intended to serve as a standard version designed to run on a wide range of computer systems.

See also: AI, Artificial Intelligence, PROLOG

Livermore Loops: The Livermore Loops benchmark test is a measure of floating point performance. It is a FORTRAN program that contains a broad sample of generic computations. There are 24 kernels, each tuned to test a different performance range of the FORTRAN development system being measured, such as, inner products, banded linear equations, tri-diagonal elimination, general linear recurrence, and Monte Carlo searches. The program is maintained by the Lawrence Livermore National Laboratory (LLNL) and is also available in the C language. Results of the Livermore Loops test are often given in millions of floating point operations per second, MFLOPS.

See also: Benchmark, Whetstones, Dhrystones, MIPS, MFLOPS, FORTRAN

Letter quality and NLQ: Printed output from a computer that appears to have been typewritten is referred to as letter quality. All daisy wheel printers and some ink jet printers produce letter quality output. Dot matrix printers that use a 24-pin print head provide near letter quality (NLQ) output, but the characters are not as dark and crisp.

See also: Resolution, Daisy wheel, Ink jet printer

Logical vs Physical Drives: There are two ways to view the disk drives in your microcomputer system, either logically or physically. When you view a drive physically, you are looking at how many tangible drives your system can access. For example, if you have two hard disk drives in your system, the first will be physical drive 1 and the second will be drive 2. These drive numbers are the same as those referenced by FDISK. These physical drives may be logically subdivided to produce logical drives during the disk partitioning process. Physical drives are referred to by number while logical drives are referred to by letter. You could have three logical drives with C and D residing on the physical drive 1 and drive E residing on physical drive 2. You could also have other logical drives such as RAM Disks or remote disks in a network.

See also: Hard disk partition

Lost chains: There is a DOS utility program called "CHKDSK" which performs an analysis of the integrity of the files on a hard disk. If all of the files and sub-directories are properly accounted for in the File Allocation Table (FAT), then CHKDSK provides information about the disk including its size, the number of files found, the amount of storage space remaining, and other useful data. If CHKDSK encounters a problem with one or more files, you may be presented with a message similar to this: "5 lost allocation units found in 3 chains. Convert lost chains to files (Y/N) ?" This message indicates that portions of a file (or files) have become detached from the rest of the file or that a file has become separated from its directory entry. You have lost chains.

See your DOS manual for more detail.

See also: Computer program, Directory, DOS, File, Hard disk

Low-level language: A programming language, using symbolic code, that is based on the machine language of a particular computer and requires an assembler to translate it into actual machine language, is referred to as a low-level language. A particular computer's assembly language is always considered as a low-level language. The C-Language is often referred to as a low-level language but it does not consist entirely of symbolic code. "C" features economy of expression, modern control flow and data structures.

See also: High-level language, C-Language, Assembly language

Machine dependency: Computer programs can be described as being machine dependent or as having a certain degree of machine independence. If the operation of a computer program relies on a particular machine architecture or operating system for successful operation, that program is said to be machine dependent. Assembly language programs are machine dependent. Most high-level languages, particularly C, are relatively machine independent or portable. That is, a program written in C under one operating system, such as DOS, can often be easily transferred to a UNIX system, for example.

See also: Assembly language, Computer languages, UNIX, XENIX

Machine language: The programming language comprised of a set of unique machine codes that can be directly executed by a given computer is called its machine language. Machine language is the lowest level of programming. It is written in a series of bits used to communicate primitive instructions to the computer. Each type of computer has its own variety of machine language. Programmers rarely code in machine language because instructions and data must be in binary notation.

See also: Assembly language, Compiler, Computer languages

Macro: A macro is a stored set of commands or instructions invoked by a single command or instruction. Macro implies substitution. One example is a keyboard macro. If you discover a sequence of keystrokes that are used over and over, a macro can be created which contains those keystrokes. It can then be invoked later, often with a single keystroke, to save time and possible errors. Another example: A spreadsheet macro is a set of instructions written into the worksheet that, upon execution, performs a series of spreadsheet operations in a previously specified order. The steps necessary to copy the values in one row to another row could be stored a macro, and then executed with a single keystroke.

See also: Instruction

Mag tape: Mag tape is an abbreviation for the various kinds of magnetic recording tape used to store computer programs and data. The tapes are used to store information offline as backups. Large computer systems and minicomputers use open reel magnetic tapes with 7 or 9 tracks or recording channels and densities of 200, 556, 800, 1600, or 6250 bits per inch (BPI). Microcomputers equipped with tape backup systems use magnetic tape contained in cartridges or cassettes of many sizes. The data that is stored and retrieved from mag tapes is done in a sequential fashion. That is, reading or writing a specific item on the tape requires reading everything in front of it.

See also: Backup, Sequential access, Online / Offline, Tape backup

Mainframe: Large computers are referred to as mainframes. More precisely, the mainframe is the piece of equipment on large computers that contains the CPU. Mainframe computers most commonly operate with word lengths of 32-bits or more, have large memory capacities, and are used where large volumes of data are stored and processed. The term "mainframe" is really a holdover from the days when most computer systems occupied the space of several rooms. There really was a main frame, and several secondary frames or large rack and panel cabinets that held thousands of vacuum tubes.

See also: CPU, Central Processing Unit, First Generation Computer

Main memory: The main memory of a computer is the storage area for programs, along with its data, while they are executing. Memory is also called RAM for Random Access Memory. The term "random access" refers to the fact that any address in memory can be accessed at random, or in no particular order. The first computer memories were serial access memories, which meant that whole sequences of data had to read or accessed before arriving at the desired piece of information. Serial access memories are no longer in use. Data, temporarily stored in RAM, should not be confused with data stored "permanently" on a mass storage unit. Data and programs stored in RAM are lost when the power is turned-off. RAM is volatile, mass storage units are non-volatile. The efficiency of a computer system is often measured by the amount of RAM.

See also: Core memory, RAM, Bubble memory

Maltron Keyboard: The Maltron keyboard layout allows potentially faster typing speeds and is easier to learn than the traditional QWERTY layout. The keyboard is designed so that the keys used most frequently are positioned beneath the strongest fingers. Thus, the home keys for the right hand are THOR and for the left hand, ANIS. Up to eight keys are assigned to each thumb. Each key is positioned at the correct height for the finger that uses it, thus minimising unnaturally long finger stretches and making the keyboard less tiring to use than the QWERTY keyboard.

See also: AZERTY Keyboard, Dvorak Keyboard, QWERTY Keyboard

............to be continued.

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Updates

Melb 0086—Optune : Archive Menu v1.0 : Modem Doctor v5.0S

MODEM DOCTOR v5.0S is a complete revision of this serial port and modem diagnostic program. Although the shareware version is limited in scope, it performs over 60 checks of modem, serial port, and motherboard hardware. New features include automatic IRQ detection, interrupt latency tests, and support for fossil drivers.

Melb 0193/4/2088/9/2335/6—KWIKSTAT v3.32 (Disks 1–6 of 6)

A statistical data analysis program. New features include advanced regression and quality control modules, which occupy two new disks, the fifth and sixth in the set. All disks are required to correctly operate the program. Kwikstat modules as on our BBS.

Melb 1347—Shez v9.0A : Shez Tutorial

A completely revised edition of SHEZ, which now supports seven different archive types, has redesigned mouse support, a new internal file viewer, option to not convert nested compressed files, corrections for SFX file processing, external viewers and some bug fixes.

Melb 1437—Easy Project v4.06

This revision corrects some minor problems and has changes to make it more suitable for use on laptops, newer types of display adapters and with extended/expanded memory.

Melb 1484—Easy Stats v1.4

An extensive revision. It now consists of 21 interactive programs, which carry out over 100 different statistical functions and tests. It requires a version of BASIC to run. P-BASIC is supplied on the disk.

Melb 1489—ARCMaster v9.4

This version fixes several problems and bugs, including difficulty in deleting files when running 4DOS, and problems in saving comments inserted with the ZIP file comment editor.

Melb 1584—What : Process : Fantasy : Gemcap v4.0

A complete revision of GEMCAP, the popular screen capture program, which has improved presentation, increased speed and compatibility with a wider range of display adapters and different display modes.

Melb 1883—ARJ v2.41

Fixes several small problems, adds several new options and has increased speed of operation and slightly improved compression size reduction.

Melb 1884—Speedkit v4.60S

A new version of the HyperDisk disk caching program that has been redesigned to be compatible with MS DOS v6.0.

Melb 2066—D-Flat v15

This revision corrects a number of errors that caused problems with pop-down menus displaying off-screen, difficulties with dialogue boxes and incorrect operation of some mouses.

Melb 2087/2348—Apay v2.3 (Disks 1/2 of 2)

APAY, an Australian payroll program, includes some bug fixes, a number of improvements enhancing presentation and operation, and some new features to provide for different allowance and leave types and mouse support.

Melb 2267—Offline v1.54

This offline mail reader now allows unlimited messages in an area, has added a browse facility for large file lists and also includes an inbuilt simple text editor for reply messages.

Melb 8001—FRACTINT v18.0 (HD)

This revision adds a number of new fractals and variants. Almost 70 different prototypes are included, with provision for users to insert their own parameters. Help screens have been enlarged and operation is somewhat quicker.

Melb 8017—Terminate v0.99 (Was Melb 2301) (HD)

A further development of the TERMINATE communications package. With its continuing development, the files will not now fit on a 360 kB disk and disk Melb 2301 is cancelled. The manual for the package still has to be written but the on-screen help display is adequate for all but the novice user.

Melb 8022—Terminal Emulator/2 v1.23 for OS/2 (HD) (Was Melb 2292)

A further revision of the TE/2 communications package for OS/2. With an increase in size of the program, it will not fit on a 360 kB disk and disk Melb 2292 is cancelled. The main changes in this version correct problems and introduce new features to enhance performance of the package.

Additions

Melb 2331—PAK v2.51

PAK is a shareware utility to create and maintain file archives in .PAK, .ARC or .ZIP format. This versatility is valuable when a mixture of archive formats is encountered. PAK is intended as a replacement for ARC by System Enhancement Associates and PKARC and PKZIP by Philip Katz.

Melb 2332/3—Envision Publisher (Disks 1/2 of 2)

EnVision Publisher is a full featured desktop publishing program with a graphical user interface, mouse support, WYSIWYG, scalable fonts, full object drawing, easy text editing and context-sensitive on-screen help. It includes a tutorial program and a 110-page reference guide.

Melb 2334—Drag and View v1.1

This program allows you to view the contents of files from the Windows v3.1 file manager with easy drag and drop interface. View ASCII, Hex and most popular spreadsheet, database, word processing and graphic formats including archived files. It has search and goto functions and can open-up multiple windows and compare files.

Melb 2335/6—Kwikstat v3.32 (Disks 5/6 of 6)

These two disks are additions to the KWIKSTAT statistical analysis base modules and contain the advanced regression and quality control modules.

Melb 2337—KWQ Mail/2 v1.1

A 32-bit QWK offline mail reader for use with OS/2 Presentation Manager. Features: advanced multithreaded searching, taglines, ability to handle many archivers, fast access toolbar, colored "message syntax" text, Adobe fonts, an internal editor, PM, OS/2, DOS or Win3.X external editors, bookmarks, and unlimited packet size.

Melb 2338—Musician I v1.1

MUSICIAN I is intended for anyone interested in creating their own music. There is no need to be familiar with computers or computer technology. It features mouse support, has a menu of instruments and allows the composition and writing of music in an easy manner. If equipped with a Sound Blaster it is possible to hear the composed music at any time.

Melb 2339—PC-Gammon V—v1.20

This is a version of Backgammon in which your opponent is a skilled computer. It runs with EGA/VGA/Herc graphics and optional mouse. It has score history for an unlimited number of players, auto/manual dice rolls, doubling, save/load games, graphics or ASCII print of game in progress. An option is to play over the phone with a friend.

Melb 2340—Quikmenu v1.07B

QuikMenu is a graphical menu system in which complex DOS commands are replaced by easy-to-use command buttons, pop-up windows and dialogue boxes. Running programs is as easy as pressing a single key or clicking the mouse and adding an item to the menu is a simple operation. It can operate on most networks that use DOS commands.

Melb 2341—Telemate v4.11 Upgrade

This disk provides an upgrade of TELEMATE v3.XX or 4.00 to v4.11. It contains all the essential files to make the upgrade operation easy. This version features enhancements to improve presentation and facilitate operation, including high IRQ support, batch status and improvements in the script language. A number of minor problems have been cleared.

Melb 2342—
Library Of Assembler Code Snippets

A collection of snippets of 80XXX assembler code on a variety of topics. The snippets come from a number of sources including authors and Dr Dobbs' Journal, and include public domain and free code. Programmers in any language should find something of interest.

Melb 2343—Colour Edit v1.02

COLOUR EDIT is a full screen colour editor that works like a text editor but allows you to create and store coloured text as well. It is useful in making changes to program files stand out in colour until they are fully tested so providing a helpful reminder of what has been done. It can also be used to prepare ANSI colour files for messages, menus, attractive screens, or any coloured document.

Melb 2344—PC-Debtors v9.03

This program has been written to handle the Accounts Receivables for small businesses having up to 2000 Ledger entries per month. It uses menus and is based on the "Balance Forward" method of accounting and presupposes a Monthly trading period. It does everything needed to control Accounts Receivables except produce invoices.

Melb 2345—Polycopy v2.8S

POLYCOPY is an easy-to-use program for making copies of diskettes with a single pass of the original accomplished by using available RAM, extended memory and/or hard disk space to store a complete disk image. It has the same facilities as DISKCOPY but is a better and faster program and offers some significant advantages.

Melb 2346—Skyglobe v3.5

This program is a planetarium on disk and provides a realistic and beautiful display of the splendor of the heavens. It displays some 25,000 stars, constellation lines, the planets, Sun, Moon, the Messier Objects, the Milky Way, and ecliptic, horizon, and RA-Dec grid lines, for any time and date, from any of over 230 locations around the world. Viewing direction can be quickly changed with easy keystrokes. (See p40 *PC Update* May 1993 for a review)

Melb 2347—Tutor by Association v1.2

This disk is a simple tutorial for beginners to better understand their computer, covering elementary concepts of the computer, files, disks, menus, common DOS commands and much more. It is presented in a colourful way and sometimes with humourous graphics that makes learning easy.

Melb 2348—APAY v2.3 (Disk 2 of 2)

With the revision of this payroll program, the size of the program no longer fitted onto a single disk. This is now the second disk of the set of two disks.

Melb 8019—
MS DOS 6 Supplementary Files (HD)

DOS 6 SUPPLEMENT is a set of DOS 6 supplementary programs not included on the distribution disks. DOS6 BUG is a list of DOS 6 bugs and compatibility problems. SMARTDRIVE v4.2 comes from Microsoft as an alternative to SMARTDRIVE v4.1 for those customers who want more conservative disk caching and are willing to accept slower disk-write performance. MS-DOS 6 Upgrade will continue to include SMARTDRIVE version 4.1. **Note: use v4.2 only with DOS 6.**

Melb 8020—Info Recall v1.1 (HD)

This is a free-form database program to run under Windows 3.1. Due to the size of the InfoRecall files, they have been compressed, but an installation program will decompress the files, install them in a directory of your choice and will add InfoRecall to the Program Manager along with the important text files.

Melb 8021—Neopaint v2.0 (HD)

NeoPaint is a powerful image editing program for DOS which is easy to install, set up and use. It has a graphical user interface and allows the editing and viewing of multiple images at the same time in high resolutions with SVGA display adapters. It features a range of drawing tools, multiple styles and sizes of fonts and multiple effects.

Rearrangement of disk numbers

As indicated above, with the continuing increase in the size of new versions of some programs, it is no longer possible to fit them on a 360 kB disk with the appropriate unarchiving program. Accordingly they will be transferred to the Melb 8000 series of high density disks and the previous volume number cancelled.

The following numbers have been changed:

Melb 2292 re-issued as Melb 8022
Melb 2301 re-issued as Melb 8017 ❑

A Quick Tip

by Ian Hinson

The <Print Screen> key is well known as a convenient way of printing text which appears on the screen. But what if your screen is in graphics mode and you want to rint the picture that is on the screen? This can be ust as simply done without the need for any special tilities other than those provided by MS-DOS.

OS comes with a program called GRAPHICS.COM hich enables graphics images on the screen to be rinted by pressing the Print Screen key.

RAPHICS.COM stays memory resident once loaded, herefore those with 386SXs or better should load it nto upper memory with the command:

```
loadhigh c:\dos\graphics.com /r
```

The /r switch makes light and dark on the screen appear exactly the same on the printer. This is "reverse" mode since normally text on the screen is white on black but is printed as black on white.

Print Screens in text mode are unaffected by GRAPHICS.COM therefore it is ideal to load it into memory at boot-up in your AUTOEXEC.BAT, so it is there if you need it.

A good demo to test it is the DOSSHELL. Start DOSSHELL and choose a graphics display option so the icons appear. Then select the colors option of Monochrome-4 Colors. Press <Print Screen> to see the printer emulate light grey and dark grey.

Your DOS manual, or online HELP has nmore information. ❑

Member's Free Ad

Wanted

An old BIT BLITZER modem, must be capable of Bell 103, 300 Baud and be 2 or more years old, ie, must NOT use the Rockwell chip set.

Chris Mar
(03) 870 0242

Special Interest Groups

Compiled by Gary Taig

SIG Coordinator

Gary Taig

BH & AH: (03) 700 1566
Facsimile: (03) 700 7700
All Hours, Every Day
If unable to make contact, please send fax requesting a return call.

A suggestion for a new SIG has just captured my imagination. Those of you who, like me are just a little over 25, will remember the days when one could go down to the local library and find books on almost any subject imaginable. My favourite was flight. I could fly any aeroplane in existence in those days. It was so easy to learn, the library was a mere 30 minutes walk, 5 minutes on the bike, and like most young people I absorbed knowledge like the proverbial sponge absorbs water.

As a 15 year old armchair pilot I was absolutely certain that given half a chance, I could have quite capably flown any plane *"they"* were foolish enough to let me near.

Oh! to be 15 today. Member George Sajovic wants to hear from other members interested in a SIG on Flight Simulators. George is not talking about the toys one can use, he is talking about the real thing, like M.S. Flight Simulator. He is currently evaluating a system known as "Tracon", an air traffic control simulator that can be linked to four separate PCs running M.S. Flight. *(Tracon is reviewed in this issue by Craig Baldwin. See Craig's review page 22.)*

George is really serious about this. Among other activities he plans to arrange visits to the various airlines to inspect their pilot training and other facilities.

So, what do you say members? Is there sufficient interest in the "real thing" for George to begin making the necessary arrangements? Do we have a band of *would-be* pilots out there, all desperate to meet other pilots and learn more about this new and much more realistic variety of "armchair" flight? Call me or fax and I'll put you in touch with George.

Assembly & Other Languages (ALT)

Felix Hofmann

AH: 523 5400
1st Thursday
7:00 PM
2nd Floor, 66 Albert Road
South Melbourne

At the ALT SIG we are primarily interested in talking about and practising any and all concepts related to technical programming. For example, in the past we have examined the structure of device drivers and TSR programs. We have explored the wonders of various programming languages such as Forth, APL, REXX, C, C++, BASIC, Assembler etc. A wide range of expertise is usually available to tap at each meeting during the usually long Q&A session, or over tea or coffee. Members are welcome to bring code for discussion, criticism, or help.

Basic Programming

Andrew Callaway

AH: 748 7678
4th Tuesday
7:00 PM
2nd Floor, 66 Albert Road
South Melbourne

Blind Citizens

John Machin

AH: 569 1440
3rd Tuesday
7:45 PM
1st Floor
87 High Street
Prahran

Borland Users

Ash Nallawalla

BH: 550 1638
(Brief calls please)
Fax: 742 4566
3rd Tuesday
7:00 PM
2nd Floor, 66 Albert Rd
South Melbourne

At the July meeting, ten members saw a demonstration of a Windows Help macro called *Doctor Help*, written by Roger Hadgraft. Roger is working on version 5.0, which will be uploaded to our BBS when it is ready. Doctor Help enables users of Word for Windows to maintain a text document, yet export it to a Windows Help file without significant effort.

At the August meeting we saw a video taped presentation of (USA) Borland's online technical support software "ESP"; how Borland selects its support staff and how queries are handled. This video was taken in July 1991, when Borland (USA) had sent me to Scotts Valley to attend its first user group retreat, but it is largely valid today.

The members present also discussed whether this SIG was worth continuing. It was created because Borland had donated all those copies of dBASE IV 1.1 and some members wanted to learn how to use it. The present attendees are not all interested in dBASE but would like to see specific months predesignated as "database", "spreadsheet", "language" and the like.

I am stepping down as Convener after this short term because I was not the Editor of this magazine when I took on the role and don't have the time to do it justice. Interested members should contact Gary Taig. Number at the top of this column

Bairnsdale Region

Robert Seiler

AH: (051) 56 8309
4th Friday
7:00 PM
School Support Centre
Dalmahoy Street, Bairnsdale.

Ballarat Region

Laurie Dixon

BH&AH: (053) 32 4492
1st Thursday
(except school holidays)
7:30 PM
Ballarat East Secondary College

Report by Jim Thyer

We have held two meetings since my last report, June on DOS 6, and July on CADD. About 35-40 attended each meeting.

Laurie Dixon discussed our experiences on DOS 6, and mentioned the few new DOS commands. Interest was intense of course, on the reported problems with DOS 6. However, as I have said prior to this, I've been running DOS 6 since it first came out, with two hard drives, one IDE of 240 MB, the other a 160 MB SCSI, with Double Space installed on both, and to date have had no problems whatsoever.

Reports on Internet suggest one source of problem is users turning off their machine before the buffer is emptied, hence files on the HD are not updated. One new Public Domain program I have obtained named SMARTPMT, will automatically flush the Smartdrive buffers as soon as the DOS prompt is returned.

Microsoft have now produced an alternative Smartdrive Ver. 4.2 which also flushes the buffers and has a variety of set up options available.

In July a local member Ken Smith, reported on CADD programs, comparing a copy of TurboCADD with GenericCADD. A retired draftsman, Ken has experience in drawing plans. He was well suited to do the comparison. In summary, TurboCADD was easy to use and at a special offer price of

$60.00 is a good buy. (Normal price, $199). Iowever, GenericCADD is a much better rogram, with more flexibility. Ken stated hat if he had to earn a living using one f these packages he would prefer GenericCADD at $695.

Ve were able to borrow a Viewgraph to fit n our overhead projector and we also had video from Softrade.

Bendigo Region

Frank Bourke

BH: (054) 43 4866
2nd Wednesday
7:30 PM
Bendigo College of TAFE
Chapel Street Annexe.

Report by Jim Shelton

t our July meeting Glen Crowhurst gave n informative demonstration of DOS 6. He ad two computers set up. One configured o use Double Space with the memory onfigured by MemMaker. The other was et up with custom commands using ifferent configurations.

Vith this computer Glen had four different onfigurations. When it was booted, there as a time interval where you could choose he configuration. If nothing was selected t this point the computer would carry on nd boot using the general configuration.

he configuration that impressed me was he setup for Windows. When this selection as made, another special menu would load ith Glen's most frequently used Windows rograms. The computer, a 386SX 30MHz as handling Windows operations faster han some 486DX 30MHz I've seen.

t our August meeting, Peter Ward carried ut a demonstration with PC Tools 8.00 and llowed members to evaluate the program.

eptember 8 Meeting.

Ielb PC members residing in the Central ictorian district should take note of this eeting. Tom Coleman will be in Bendigo find out what members require in the ay of training programs. So what do you embers in this area require? Come along this meeting and let us know. Tom will so discuss trouble shooting at startup.

October we will visit the Bendigo dvertiser. Join us for an interesting nd informative evening.

larion

Alan King

BH: 819 5005
4th Wednesday
6:30 PM
St.Mark's Anglican Church
Cnr. Canterbury & Burke Roads
Camberwell

Communications

Philip Lew

BH: 822 2998 *(Brief calls please)*
2nd Wednesday
7:30 PM
2nd Floor, 66 Albert Road
South Melbourne

All beginners who turned up to our July meeting received a copy of a publication titled "Beginners Guide to the BBS". This can be obtained through the main office.

Forms for the Bluewave Mail Reader bulk registration were available to those wishing to participate in the very generous offer by author George Hatchew. So far well over 50 Melb PC members are taking advantage of the special A$25.00, all inclusive price.

Questions and answers began with discussion of some recent problems on the message BBS and the amount of work that was needed to get it working again, with new hardware and software. Thanks to those who spent so much time to get it back up and running so quickly.

Modems were a hot topic on the night. The question of *"what is the ideal speed and cost"* resulting in yet another hi-speed modem, bulk purchase arrangement being initiated for interested members, Inquiries to Barry McMenomy, please.

Much discussion took place about BBS log on and why the current registration procedures are necessary. Unfortunately this is tied to the flexibility (rigidity?) of the BBS software and for the moment we must persevere. Generally, registered members have 21 days grace after their membership expiry date before being cut off. So don't forget to re-register on the board after you renew your Melb PC membership.

Terry Kemp gave a presentation on the merits of the OLX-TD Offline Reader, a DOS application. Then using TE2, an OS/2 Communications package, Terry showed us how to upload messages to the BBS. He explained some new features of the messages BBS and how much faster it was.

Beginners were shown how to upload and download archived message reply packets, as well as how to enter messages using the Max editor *(Wordstar type commands)*. We also saw how a Sysop can break in during this operations for a chat. All of this was demonstrated live from our SIG meeting room with a telephone connection to the new messages BBS just across the hall.

After a short break we attempted to solve various members' problems. Two internal card modems which has problems with initialisation, interrupt conflict or hardware settings were tested by Mark Trickett.

One member with an early Sendata 300 bps modem learnt how to use his non "smart" modem (ie. a modem that uses manual dial and switches to connect to a BBS) and had his modem thoroughly checked out. Other members swapped difficulties and solutions on such problems as the initialisation of Netcomm M7F, Interlink Voidax, Spirit II and Avtek V32bis MegaFax modems requiring optimum settings.

A good night was had by all. Some regular BBS users met each other for the first time. Other members found people who could help with their most pressing problems.

We didn't see as much as I would have liked on OS/2 because Terry had needed to reinstall OS/2 on his machine following a mishap earlier in the week. Perhaps we will see more at a future presentation Terry?

In August we are planning an overview of Internet. What is it and how is it accessed, what services are available and so on. If you are interested in communications we welcome your attendance.

Computer Music

Murray Grigg

AH: 318 2834
2nd Thursday
7:00 PM
2nd Floor, 66 Albert Road
South Melbourne

DBMS

Michelle O'Rorke

BH: 508 2467
AH & Fax: 429 2852
2nd Monday
6:00 PM
2nd Floor, 66 Albert Road
South Melbourne

At our June meeting, David Wyntner demonstrated a "pen point" system on a small *"keyboard-less"* notebook computer. The system is designed for entry of sales orders or similar data which can then be uploaded to a central database via modem.

David said that to date, only one percent of PC applications use Pen Systems. This year the figure is estimated to rise to four percent and up to as high as 20% of the market next year. The system David demonstrated was based on a complete operating system and interface built from the ground up. Unfortunately time constraints meant that we didn't have much opportunity to look at the database tools involved so we may ask David to come back at a later date for a further demonstration.

At our July meeting I took the group through a quick tour of Foxpro for Windows. For those who have used Foxpro 2.0, The Windows version is similar in but it adds the nice Windows interface and a new data type to store bitmaps and OLE Objects. Foxpro for Windows will also allow full access to Windows DLLs. So far I've had time to just barely scratch the surface in exploring that capability.

At the August meeting Chris Yates shared some of his recent development experiences with Microsoft Access. Chris showed us the basic database design tools, forms and reports. He gave an insight into the change in programming paradigms for those of us who came from a structured, record by record approach to database development.

The topic for our next meeting has not been set at the time of going to press, so if you are interested in DataBase Management Systems come along on the 2nd Monday of the Month, or phone me for details.

Geelong Region

Peter van der Zwaag
BH: (052) 41 1082
Last Wednesday
8:00 PM
Geelong Amateur
Radio Club
4 Storrer Street,
Geelong

At the Geelong SIG we've enjoyed many interesting sessions in recent months. We continued our exploration of DOS 6. We experimented with the file transfer features via both serial and parallel cables, as well as the remote install features.

We looked at a Sharp ZQ5200 Electronic Organiser and the communications package to connect and back it up to a PC. This with compliments of Quality Connection Geelong and we thank them for their generosity.

In future meetings we intend to look at Norton's Utilises Version 8.0. This is DOS 6 compatible and a great buy if your are using double space. Traditional choices for repairing corrupted hard disks such as Nortons Disk Doctor 6.0 and PC Tools Diskfix have proven to be hazardous.

Another product we have covered is PC Tools Ver. 8 Commute. Commute allows one PC via a LAN or modem link to access another. It works as if you were typing on the keyboard of the other machine. One can also access printer, floppy drives, download files and so forth.

At one meeting we tested a hard disk caching controller. We did quite a few simple tests. i.e measuring the time it takes to load Windows, copying files from one directory to another and other similar exercises. Members have had some interesting queries on optimising Windows and we look forward to more coverage of this topic in PC Update.

If you live in the Geelong area and find the travel to Melbourne meetings difficult or impossible, come and join us at our local meetings on the last Wednesday of each month.

Goulburn Valley Region

Louis Cook

AH: (058) 62 1582
2nd Tuesday
(Except in School Holidays)
7:30 PM
Shepparton North Technical School
Varney Road, Shepparton North

Graphics

Yahya Abdal-Aziz

AH: 562 1023 *(brief calls please)*
4th Monday, 7:45 PM
Alternating Venue—see report below for details

The Graphics SIG meets at 7:45 pm on the 4th Monday of each month (one week earlier in December). In ***odd****-numbered* months we meet at Dudley Robin's home at 24 Hillview Road, North Balwyn. In ***even****-numbered* months, we meet at Nadish Naoroji's studio at the rear of 8 Park Crescent, North Caulfield.

We welcome all members with an interest in graphics of any sort. Some favoured themes are: animation, drawing, drafting, fractals, file conversions, GUIs like *Windows*, multimedia, painting, programming, photo retouching, printing and publishing, and screen-savers.

Hardware

Felix Hofmann

AH: 523 5400
3rd Wednesday
7:00 PM
2nd Floor, 66 Albert Road
South Melbourne

Report by Graham Paul

Thirty members attended the July meeting which started with a presentation of Touch Screen Technology.

John Vincent and Don Rottman of Redflex Touchscreens, (ph. 429 8100) demonstrated and explained the two types of touchscreen technologies. Gene Blackley and Bruce Kellet of Multi-Media Applications, (phone 696 7800) then demonstrated several information display applications they have written. There were many questions from the floor after the presentation and members eagerly took the chance to play with the systems on display.

After tea the meeting reconvened for a Question and Answer session.

Felix welcomed the new members to the SIG and invited them to put their questions to the chair. Topics discussed included:

- SCSI drive and double buffering SMARTDRV.EXE
- Digital and analogue joysticks
- Monitors with TTL and analogue switching
- Cyrus and 486 DLCCPUs and Pentium Technology
- Repairs to LCD laptop screens
- Master and slave HDD problems
- SMARTDRV.EXEVer 4.2 for DOS 6
- Extensive, lively debate on the meaning, location and use of DOS buffers

After the question and answer session, members broke into small groups to examine hardware that had been brought in for inspection. Meeting finished 11:00 PM

New Users Central

Felix van Lier

BH&AH: 525 3962
3rd Monday
7:00 PM
2nd Floor, 66 Albert Road
South Melbourne

Twenty five enthusiasts attended the June meeting all eager to hear Tom Coleman speaking about how to write Batch Files. As most of us had no idea of how to create Batch Files and were rather in awe of the whole thing, it was most gratifying to find that at the end of the evening we really could write a simple Batch File. Tom had prepared some excellent notes and having studied them very carefully, I was encouraging to receive several telephone calls from members the next day saying it worked and they could now create a Batch File. Thanks Tom from all us.

Our July meeting started with the usual question and answer session. Topics included memory resident programs, variou Anti-Virus programs, copying files to floppy disk, various ways to delete subdirectories, virtual memory, ram drives, CMOS setup, expanded and extended memory and much more. After refreshments we again looked at data compression, which had not been clear to many people.

Doug Brooke had previously prepared notes that were most helpful. We found it was important to learn how to use the various archiving and un-archiving commands from the DOS prompt in order to thoroughly understand what we are doing. Whilst it is undoubtedly easier to use programs such as Shez or Winzip everyone agreed that the knowledge acquired from the command line gives one a much better grasp of computer literacy. After all, we are a New Users Special Interest Group and everyone appreciates that the extra effort needed to build our knowledge on a sound foundation can only result in a better overall understanding of computer operations.

So come and join us friends. We assure you of a pleasant evening.

New Users East

Doug Brooke

BH&AH: 822 3458
2nd Tuesday
7:30 PM
St.Mark's Anglican Church
Cnr. Canterbury & Burke Roads
Camberwell

Report by Graham Paul

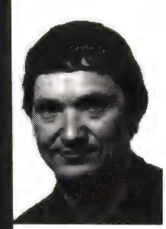
The July meeting had 15 members present and was chaired by Doug Brooke.

First part of the meeting took the form of a question and answer session. The topics discussed included:

Memory problems with DOS 5: Windows installation program problems: SETVER.EXE Norton Utilities Ver 7.0 and Memory addressing using segment and offset.

Doug Brooke then presented a tutorial on using DEBUG.EXEto create a simple utility program together with a brief introduction o binary and hexadecimal numbering. The meeting ended at 10:00 PM.

OS/2



Terry Kemp

BH&AH: 783 2860
4th Monday
6:30 PM
2nd Floor,
66 Albert Road
South Melbourne

Report by Albert Chong

The attendance of 26 members at our July meeting is an indication of the increasing popularity of the OS/2 Operating System.

Most of the evening was devoted to discussion and explanation of the OS/2 High Performance File System (HPFS). Inevitably this led to a discussion on OS/2 installation and hard disk partitioning.

uring the evening we had a surprise announcement that our club BBS was operating under OS/2 and it was reported o be running better and faster than before. Naturally this led to comments about the uperiority of OS/2 for communications and n turn, bulletin boards.

f you wish to know more about the OS/2 IG and you're unable to contact Terry, el free to call me on (03)841 7586.

Parliament

Mike Purdy

BH: 651 8991
Contact convener for meeting details.

PC Support

Noeline Finlay

AH: 338 2381
4th Wednesday
7:00 PM
2nd Floor
66 Albert Road
South Melbourne

In July the PC Support Group met to have a close look at InfoSelect. Carl Gadini from Step Up Systems showed us the versatility of the program and how it can be used in a Help Desk situation. He demonstrated both the Windows version and the DOS version. I was struck by how much it operates just like a person's mind. That is you don't have to structure the data being stored; just type it in any which way, and when you need to find it you very quickly can. *Actually on second thoughts I can't find every bit of information that quick!*

InfoSelect is a free form database with variable sized records that can search for a text string very quickly. With a little bit of planning you can use the package in many different ways. Thanks again to Carl Gadini. Contact him on 427 0168, or 191-193 Bridge Road, Richmond.

I have decided to change the format of meetings so that instead of just having a guest speaker then talking about that topic; we will also have a question and answer session to share problems and solutions. Hence after coffee we began our question and answer session which covered site licensing, software licenses and how they vary for different packages and with different configurations, Norton's Speed Cache instead of Smartdrive, viruses, EMM386and support.

Our meeting on Wednesday, 25 August will look at OS/2 vs. Windows NT.

The PC Support SIG is what the members want it to be, so please don't hesitate to offer suggestions for what you would like to see or what might be of interest to others in the group. Generally we focus on things the PC Support person might strike in their day to day support of PC users but since PC Support is so wide ranging, that gives us a large range of topics to look at. All Melb PC members are welcome to our SIG which meets at 7:00 PM on the fourth Wednesday of each month except January.

Peninsula Region

Bill Docherty

AH: 772 5125
4th Thursday
7:00 PM
"John Madder" Hall
Mornington Peninsula Hospital
Hastings Road, Frankston.

Q & A

Ian Garth

BH: 280 8564
3rd Thursday
6:00 PM
2nd Floor,
66 Albert Road
South Melbourne

Quicken

Viv Martin

AH: 551 4838
4th Thursday
7:30 PM
2nd Floor, 66 Albert Road
South Melbourne

Our July meeting with sixteen attendees saw Peter Freeman unravel the mysteries of the Quicken QIF file format. Peter explained the structure and how he transferred data into QuickBooks using QIF and a database.

Do we have any other volunteers out there willing to give a presentation on some feature of Quicken or other methods, or uses for Quicken; particularly DDE?

Hopefully, future subjects will include exporting to ASCII and spreadsheets and so on. Contact me for further details of future meetings.

Retired & Interested Persons

Sam Brown

BH&AH: 889 0164
4th Friday
*(Note, **not** last Friday)*
10:00 AM
Lutheran Church, 25 Cypress Avenue,
Glen Waverley

Report by Patricia M. Melville

Mortality and the hereafter were recurring themes throughout our July meeting. In the beginning, 93 restless souls wandered about in an atmosphere of general unease. Many, clutching the first edition of the RIPSIG News, seemed reluctant to sit down and be counted. Somebody objected vigorously to the connotations of RIP.

Three new members introduced themselves. They had several things in common; all were men and seemingly mortal, each having been reluctantly but inevitably seduced by bytes and bits.

A friendly message was received from Ron Wilby's incorporeal dog with a request for Beginners Articles for *PC Update*.

Mr David Gibson demonstrated a powerful WordPerfect 6.0 for DOS. Women members were put on the spot; a Greybeard manifested itself from heaven knows where, and unctuously described the women present as *word processing experts*.

Out of politeness women did try to articulate some problems inherent in word processing which were currently bothering their pretty little heads. Thus walking into trouble! A gentlewoman from Mount Eliza kept her ? questions until after the meeting so as not to appear foolish, and she tactfully allowed Mr Gibson time to captivate the July audience with his almost miraculous multicoloured dragon winging its way around a page, confined only by the text flowing around it.

Might we to anticipate Paradise in August? That's what is sounded like, but on second thoughts — it's more probably back to earth with Paradox & Quattro Pro.

Shareware/Public Domain

Leon Cohen

BH&AH 802 1984
4th Tuesday
7:30 PM
St.Mark's Anglican Church
Cnr. Canterbury & Burke Roads
Camberwell

Small Business

Barry McMenomy

BH: 500 9522
AH: 699 9759
1st Tuesday
7:30 PM
2nd Floor,
66 Albert Road
South Melbourne

Sunbury Region

Brett Chapman

BH: 744 5321
2nd Tuesday
8:00 PM
37 O'Shanassy St.
Sunbury

Turbo Pascal

Ross Hall

AH: 568 3813
2nd Tuesday
7:30 PM
2nd Floor
66 Albert Road
South Melbourne

At our July meeting we mainly had a look at two areas of interest. Mark Trickett brought along the book titled PC Intern, an excellent example of a text on some of the intricacies of MS DOS and with an enormous amount of sample code. Although the examples were in a number of different languages, there was enough Pascal code to keep us amused.

The demonstration last month of the Oberon compiler by Myles Strous was augmented this month by a demonstration of the Oberon operating system. This was a sample windowing graphic user interface that runs under DOS to show the Oberon system and some of its features as it would be run as a stand alone operating system. Oberon was invented by Niklaus Wirth, the developer of Pascal and Modula-2, at the Swiss Federal Institute of Technology in Zurich. He claims that most of the clumsiness found in Pascal and Modula-2 has been eliminated from Oberon. With the addition of object orientated facilities, Oberon is on a par with the other programming languages as far as state of the art programming constructs, but whether it follows the success of Pascal is yet to be seen.

Other topics discussed were memory management and the techniques involved, and smooth scrolling of text on the screen. The meeting closed at 11.30 PM. The next Turbo Pascal SIG will be held on Tuesday 14th of September. All welcome. Hope to see you there.

Waffle SIG

Terry Kemp

BH&AH: 783 2860
Movable Feast
"Eat-Ins" held after each Main Monthly Meeting *(Refer Convener for details)*.

Report by John Graham

The Waffle SIG meets for dinner after each monthly meeting. About 40 people attended the August get-together at Taco Bill's on Clarendon Street.

We enjoyed all we could eat, starting with Mexican Punch and Nachos Supreme, continuing with marinated beef, chicken and lots of other things ready to be made into Tacos. There was hot stuff for those who wanted it, but *"natural"* was also available.

The good food and various drinks lubricated a variety of small groups in discussion. Unfortunately in my attempts to research suitable material for this column I could find only computer related conversations.

Each month we post the venue for the Waffle SIG meeting on the wall outside the main meeting hall. Sometimes we are able to organise an announcement from the platform but if not, and if you wish to obtain information about the venue forthat night, look out for a Waffler who remembers to wear his or her Waffle SIG badge.

UNIX

Yahya Abdal-Aziz

BH&AH: 562 1023 *(brief calls please)*
2nd Friday
7:30 PM
2nd Floor, 66 Albert Road
South Melbourne

The UNIXSIG is for Melb PC members who use any form of UNIX on PCs, or want to know whether UNIX would suit their needs better than DOS, Windows or OS/2 development (OOD). It gives you the chance to learn some relevant skills in an unstressed and friendly atmosphere. All members are most welcome.

Windows

Nigel Harris

BH: 368 2808
AH: 398 4259
1st Monday
7:00 PM
2nd Floor,
66 Albert Road
South Melbourne

Report by Isabel McRae

Last month, we had 33 members attending the Windows SIG. After the question and answer period, we discussed among other things, how to double space a RAM drive; how to load doublespace in your AUTOEXEC.BAT and CONFIG.SYS, and we looked at Hyperdisk - a replacement for Smartdrive.

Nigel distributed a handout on how to change an icon to the one you prefer when you open windows. We had discussed this at our previous meeting and everyone agreed that we would be able to do it ourselves if we had a comprehensive guide.

After a 15 minute social break, Ian Mitchel gave a demonstration on how to create a macro in Word for Windows and discussed in detail two macros he had created to print fonts. A handout on this was also distributed.

Next meeting will be on the first Monday of September and we will have a temporar change of time and venue. For more information, contact Nigel on his number shown above, or phone me on 598 4126 after 6:00 PM.

Random Access

by John Swale

This month's column is limited to mail and BBS correspondence because the Borland sponsored August monthly meeting did not have a Random Access session. I would herefore like to take some space to issue a plea for ore answers. I am concerned that there are so any unanswered questions or questions with artial answers. There must be many people who ead this column who could help their fellow embers by supplying those answers. All it takes is telephone call, a BBS message, a short memo or a rief chat to me at the monthly meeting. One of the ain reasons for joining this Group is the sharing f knowledge and experience. So how about a lot ore sharing?

his column is meant for all members; it is not just r the advanced user with technical questions. here must be a lot of you who have just started ith PCs or with a new piece of software who have roblems that need to be solved. If you cannot ttend one of our training sessions or SIGs, then the andom Access session at the monthly meeting or is column is a way for you to get answers. Also if ou have a problem that has been solved at one of e SIG meetings or through Dial Help, why not ive me the problem and answer so they can be ublished to assist others?

nough of the commercial, now down to business.

nswers Received:

ndrew Wolfe has some comments on video cards r the person wanting to output to a video recorder. he MEDIAV video card (around $600) cannot output a video recorder but is good for TIF files. The PV ideo Master (Around $200) is cheaper but does not ave the quality. The Encoder BOX ($500) from iamond Technology in NSW has output that is ot too bad". The Multi Video System (MVS) from ako Vision ($4500 for the full kit) will handle PAL SVHS. It is available for DOS or Windows lthough the Windows drivers could be improved. It available from Vines Micros in England. The RGA ($500) is NTSC only (PAL is limited). Andrew n be contacted after hours on (03) 380 6248.

ndrew also said he obtained the HP500 drivers om Microsoft.

hn Rave has some information for Ian Cranwell garding Dutch language programs.

. There is a Dutch language module for WordPerfect 5.1 comprising spelling checker, thesaurus, hyphenation file and keyboard driver. These are extremely easy to use. At the beginning of the document simply select Format, language, then type NL and Exit. This module is available from WordPerfect Pacific, telephone (02) 415 5222, Fax (02) 418 7505. Price is $150 plus tax ($1.98). Alternatively there is Dutch version of WordPerfect.

Wordstar 7.0 should have a Dutch Dictionary and Spelling Checker available for approximately $70. Contact WordStar Australia Pty Ltd, telephone (02) 411 7255, Fax (02) 411 6129. A complete Dutch version is available from Dataplus Distri BV, Raadhuisstraat 14, 5582JD Aalst-Waalre, The Netherlands, telephone 0011 31 4904 15115 telefax 0011 31 4904 16495.

3. Brother's Keeper 5.01 is a shareware genealogical program available from Melb PC. Upon registration (A$45.00) ask for the Dutch language version. This is an extremely easy to use program, with a great many options for output and can cope with 1 million names! The program can be registered with John Steed, 6907 Childsdale Road, Rockford MI 49341 USA. Telephone 0011 1 616 866 9422 (0800 to 1030 Eastern Time), Fax 0011 1 616 866 3345.

Unanswered Questions:

Jack Lipszyc has been attempting to find software to facilitate rostering of staff but has not had any luck through the Melb PC PD library nor Dial Help. He writes " Say you have ten workers who must share an "on-call" roster for after hours work. Some may be required to work more nights per month than others, some may not wish to work on certain days during the next cycle of the roster, etc. On some days more than one may have to be on duty. Then there are the holidays! Most computer stores personnel seem to develop a glazed look in their eyes or try to sell me an expensive project manager package without knowing if my task is in there. Any suggestions?" *[I am sure we have all seen that look! JS]*

Ian McDowell wants to know if an 80386 with 2 MB DRAM should be able to handle zero wait states without intermittent lock-ups. If lock-ups occur what are the most likely causes? ❏

Over to You

Please contact me if you have any comments on the answers given; can provide a reply for the unanswered questions; or if you cannot attend the meetings and would like a question asked and included in this column.

To contact me: write to me care of the office; leave a message on either of the Files or Messages BBSs; or telephone me on the numbers given on the Contents page.

Note:

Please contact commercial distributors before asking a question here. In all cases mention version numbers.

If your PC's a dog, call in the VET!

VET
Anti-Viral Software

GET THE VET

CYBEC Pty Ltd, PO Box 205, Hampton 3188
Tel: (03) 521-0655 Fax: (03) 521-0727

SuperStor Pro

by Bryan Leech

As program sizes escalate, real estate on your hard disk becomes increasingly valuable. Until, perhaps, only a couple of years ago, a 40 MB hard disk satisfied the needs of most people. Now, even 100 MB, a common market entry size, can quickly prove to be inadequate. For instance, CorelDRAW! needs something more than 30 MB, if all options are installed. A drive with several hundred megabytes is becoming more appealing, even essential. Regrettably, a 500+ MB hard disk is quite expensive, and so a more feasible option for many people is to use some type of file compressor.

Compressors and Compressors

File compression software (not to be confused with file *archiving* software like PKZip) has been around for some years, with several offerings on the shareware market. A French program, SLIM, compressed files onto your hard disk [*Ed: As do LZEXE and PKLITE— AN*]. If you used a compressed .EXE file, it was decompressed, on the fly, from your hard disk. Any changes, or new data files, were compressed, on the fly, as they were placed on the hard disk. For many people, SLIM and several similar programs were tricky to handle. At times, files were crunched rather than compressed, and so data was lost, or the program had to be reinstalled.

The current crop of compression programs, available from your friendly computer store, work in much the same way as SLIM, but present little risk to your valuable data. In recent times we have been given the more professional choices of Stacker, DoubleSpace (included with DOS 6) and SuperStor. At least one manufacturer provides an add-in board for hardware compression, or "stacking" instead of working through software. This costs more, but has the advantage of higher speed and slightly more efficient use of your disk space.

Compressing with SuperStor

SuperStor Pro is a software-based disk file compressor that, on average, will double your disk space. Recent reviews of other compression programs have appeared in this and other magazines, so I will try to avoid duplication. For more detail on just how much compression you can expect to achieve, see the review of Stacker in the May 1993 issue of *PC Update*.

At a first encounter, it is easy to be confused by the concepts of "container files," "host disks" and the like and the manual that comes with SuperStor Pro doesn't manage to add any clarity. Generally, a compression program such as DoubleSpace, creates one large file, called a "container file" into which all your files are placed. This container file is placed on an existing logical drive on your hard disk, which becomes the "host" disk.

Consider the container file as being like a rubbish bin liner. All your files go into a container file, the liner bag. The liner may fill the entire rubbish bin, or you may place several liners full of rubbish into the one bin. Similarly, your container file may occupy the entire disk, providing one virtual drive, or several container files could be placed on one logical drive, giving several new virtual drives. To the user, you have just gained some new drives that appear to work the same way as any other drive.

Let us assume you have two logical drive partitions, C and D and you have decided to compress drive D. If you already had files on this drive, they would go into the first (and probably, only) container file on this DOS partition, which would logically become drive E. Drive D would still exist to house the container file and som small management files along with any uncompressed space you might have chosen to reserve. The compression program then swaps drive letters, so that all your original files are on a "drive" with the same letter as before, in this case, drive D. The DOS drive that holds the container file is swapped up to a higher letter; here it would be E. So the uncompressed space that was available on D, now appears on "drive" E.

Clear? If so, come and explain it to me!

While this is the general approach for most disk-stacking software, it is just one option with SuperStor Pro. If you choose to compress an entire drive, you end up with the same driver letters, associated with the same collections of files. No new drives appear out of the blue. The container-file "drive and the DOS logical drive have become synonymous. However, you will have approximately twice as much free space as before. And your files will take up roughl half the space they did before. It's easy.

If you want to compress part of a drive, and leave the remainder uncompressed (for example, the Windows swap file region), then that is also an easy option. Simply tell the program how much uncompressed spac you want. A container file will be created to occupy pa of the disk, and the uncompressed portion will appear as an additional drive. You can decide if you want the drive letters swapped or not.

Using SuperStor Pro

Once a drive has been compressed, you can then usually forget the program is present. There are a few caveats though. To defragment a compressed drive, us the defragger that is included or use Speed Disk in Norton Utilities, version 7 (do not use any earlier version of Speed Disk for this operation). I have not tested it, but I imagine the defragmenting utility that comes with DOS 6 will possibly work with SuperStor because it works with DoubleSpace. But tread warily you could lose the entire contents of the drive!

The manual lists several utilities, including cache programs, which are not compatible with SuperStor Pro. The problem cases are few, especially if you are upgrading to Norton Utilities version 7. This is supposedly fully compatible with SuperStor, although did have trouble with the combination of Norton Cach Windows, WordPerfect for Windows and AfterDark, even with the /MULTI=OFF switch activated in the Norton cache. My problem appeared to be related to AfterDark, as the lock-up did not appear if this was disabled.

Transportable Compressed Floppies

SuperStor can create removable compressed disks using normal floppies of any size or density. The flopp has a container file and several other essential files. A UDE disk (Universal Data Exchange) is created which can be read on any computer. SuperStor is not neede to read these disks. DoubleSpace can create compressed floppies, but the disks can only be read o

Member's Free Ad
For Sale

3M Portable Overhead Projector. Model Five "O" 88. In mint condition; complete with carry case and spare lamp. $300 ONO

Frank Osowski
(03) 376 1296

Member's Free Ad
Wanted

HP LaserJet Series II Printer Technical Reference Manual (Part #33440-90905).

Phone David
(03) 569 4619

Member's Free Ad
For Sale

MICROSOFT PUBLISHER for Windows v1.0
3.5" disks and handbook.
$75

Phone Rodger
(052) 48 2398 BH

another machine with DoubleSpace. While a SuperStor compressed disk can be *read* on any PC, you cannot *write* to the disk on just any machine [*Ed: Unlike Stacker, where you can. —AN*]. You can only write to the disk on a computer that has SuperStor running.

The compression ratio of 2:1 is approximate. Different files have differing potentials for compression. EXE files are usually the least compressible, sometimes only around 1.4:1, and some graphic files, along with spreadsheets tend to be the most compressible, up to 8:1. However, 2:1 is the common average figure for the contents of a disk. Telling the program to compress an EXE file to 8:1 just will not work.

Two main programs come with SuperStor Pro. SSTOR performs the usual compressing, preparation of compressed floppies, statistics on the space and degree of compression on each drive, and general program odds and ends. The SSUTIL program will check for any disk errors and generally repair them. I should add that I have been regularly using the program for six months now and it has not caused a shred of trouble.

SSUTIL can shrink or expand your container file, and it also performs fragmentation analysis and defragmentation, the latter at a painfully slow speed. Norton Speed Disk (version 7 only!) works fine and is considerably faster and more versatile when defragmenting a SuperStor drive.

Working with Windows

The complete set of SuperStor operations can be mplemented from DOS menu screens. These screens will also reveal the progress of various operations with bar graphs and the like. You can also access most of the features from a Windows screen that is simple, effective and faster to use.

Memory Overhead

SuperStor uses memory very efficiently. It provides options on where to load it, without any need to be a omputer whiz kid to understand. My main 486 machine is a bit reluctant to load some things high, but SuperStor Pro gave no trouble here. A note of caution here; the cheaper versions of SuperStor (that s, not the "Pro" version) are less keen to go into upper memory. The "Pro" version requires about 50 kB of memory plus 4 kB for each compressed drive, but, by loading high, only about 10 kB remains in DOS memory, depending on the other device drivers you are placing into high memory.

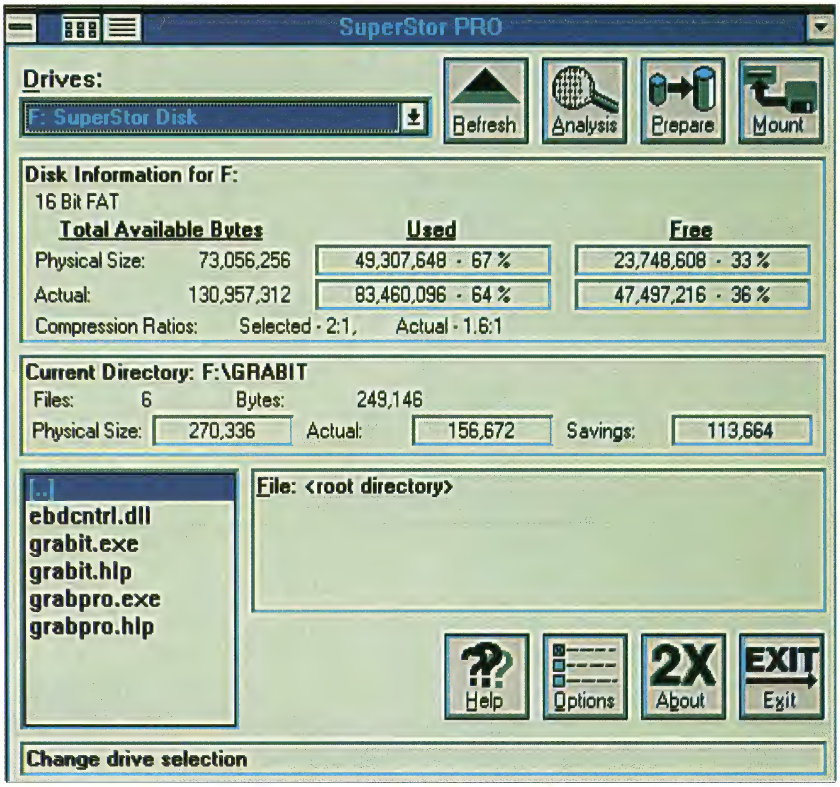
Removing SuperStor Pro

n the unlikely event that you should wish to remove he program from your system, SuperStor Pro (and nly the Pro version) can be de-installed *without loss f data*. Provided you have enough space to house all f the uncompressed files on that drive, SuperStor Pro an be non-destructively removed from your system.

Final Thoughts

n all, SuperStor Pro works well. It is totally ransparent; you can completely forget about it unless ou want to create a UDE floppy and are careful about small and diminishing number of utility programs.

n terms of efficiency, measured by compression ratios and speed of operation, there is probably a negligible ifference between the main contenders on the market. uperStor Pro stands out with its capability of producing UDE floppies, and the ability to safely remove it, should you wish to, without any loss of data or programs.



Drives: F: SuperStor Disk

Disk Information for F:

16 Bit FAT

	Total Available Bytes	Used	Free
Physical Size:	73,056,256	49,307,648 - 67 %	23,748,608 - 33 %
Actual:	130,957,312	83,460,096 - 64 %	47,497,216 - 36 %

Compression Ratios: Selected - 2:1, Actual - 1.6:1

Current Directory: F:\GRABIT

Files: 6 Bytes: 249,146

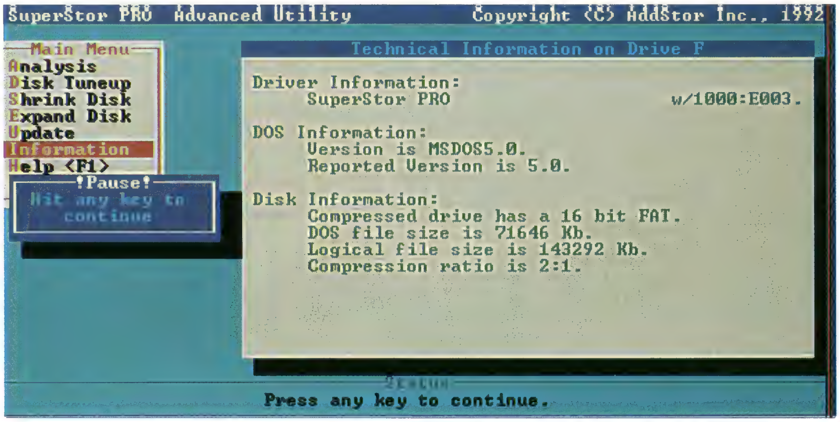
Physical Size: 270,336 Actual: 156,672 Savings: 113,664

[..]
ebdcntrl.dll
grabit.exe
grabit.hlp
grabpro.exe
grabpro.hlp

File: <root directory>

Change drive selection

Figure 1. SuperStor PRO menu



```
SuperStor PRO  Advanced Utility              Copyright (C) AddStor Inc., 1992

        Technical Information on Drive F

Driver Information:
     SuperStor PRO                          w/1000:E003.

DOS Information:
     Version is MSDOS5.0.
     Reported Version is 5.0.

Disk Information:
     Compressed drive has a 16 bit FAT.
     DOS file size is 71646 Kb.
     Logical file size is 143292 Kb.
     Compression ratio is 2:1.

!Pause!
Hit any key to
continue

Press any key to continue.
```

Figure 2. SuperStor PRO Advanced Utility

It is compatible with all types of removable media. In the six months or more that I have been using this program, it has never caused any problems, and I have a fairly large and complex system for it to contend with.

If you are considering moving to DOS 6.0 because of the DoubleSpace feature only, then I would suggest you consider SuperStor Pro. Apart from a manual that shows a decided lack of clarity from start to finish, the program is hard to fault, and is a pinch more versatile than the competition. Like its competitors, there is a small speed loss, but this is negligible.

Prices vary. The recommended retail is around $200, but I have seen street prices of $130 — just $30 more than the current DOS 6 price.

About the Author

Bryan Leech was a lecturer at RMIT and is now a freelance technical and science writer. ❑

Eight Bits of Impact

by Gary Taig

This will take you on a journey through many aspects of Personal Computing. At times we will travel deep into the inner workings of the computer itself, to see *exactly how* something is achieved. On other occasions we will skim lightly over the surface.

We will cover topics ranging from what is a disk, to how a computer stores and reads data from a disk. We explore "bits" and "bytes" and the way in which a computer distinguishes between one word and the next. We cover the different types of memory and we look at how and why a personal computer uses memory.

It's all extremely fascinating and I hope you enjoy learning as we uncover some of the most fascinating aspects of this most intriguing technology.

The main topic is **Databases** because they represent a *big proportion of all computing activity*. This tutorial will provide the average reader with an easy to follow, easy to understand insight into databases *without* the usual industry jargon or in-depth analysis of database theory.

This is for those people who know of the *word* database but know absolutely nothing about databases and even less about computers. It will cater to the average thirst for knowledge: perhaps provide the bare basics for the would-be database designer or programmer.
It should be interesting to those employed in Education, Industry & Commerce or Science, who may be curious, but always work at the edges and never get an opportunity to be any closer to this than walking past the door of the Computer Department.

*This is **not** a lesson on how to design a database, nor on database programming.* However, if you read it **very carefully**, you will understand considerably more than many who call themselves experts.

We should begin by clearing up an all too common misconception. What are these things we call databases?

Q. *When is a Database a list of names?*

A. *When a Motor Car is a Ford!*

Many people believe a Database to be a collection of some names and addresses and other information about people or companies. Well, just as a motor car is not necessarily a Ford, databases are not always lists of names and addresses. Databases contain all kinds of data and they are built and maintained in every conceivable industry and profession. Information the Data provides is used in many ways. Data captured during *manufacturing plant operations* is re-used immediately to maintain strict *process control*. Data gathered daily in a *factory sales office* is often used the next day to place *orders for raw materials*. Data gathered by Telecom is used to make up your account. Data extracted from *computer drawings* is used to generate *office documentation*, again by computer.

References to Databases throughout this article will apply mainly to what are popularly known as "Relational Database Management Systems" designed for use on a Personal Computer. At times I will use the word "System" when referring to this combination of both the databases themselves and the Computer Programming Languages associated with them. We will also cover briefly the fundamental difference between these Systems and the original, *truly* Relational Database Management Systems.

PC will always mean "Personal Computer", the desktop variety. Most of us have seen or at least heard about them. Computers increase in size from there on up to the huge Mainframe units, singularly capable of the combined workload of many smaller, "personal" units.

Irrespective of whether a Database System is used on a Personal Computer or a Mainframe or, whether or not it is a Relational Database System, all computer databases and the relevant Database Software come under the general term **DBMS** This stands for *"DataBase Management System(s)"*. You may have seen it before, now you know!

As for the word "Database" however, much of what is included here applies literally to any database whatsoever, on any kind of computer. Where there are differences between the capabilities, or the requirements of one kind of DBMS and another, I will make no attempt to explain them. Those differences would interest only the Computer Software Developers and Programmers who like motor car enthusiasts, often believe their System is the only System worth using and they argue over this, sometimes with great enthusiasm.

What EXACTLY Is A Database?

Database is a word that has grown from the 20th Century technology we have learnt to know as "Electronic Computerisation".

Since the advent of Electronic Computerisation, mainly from about the 1940s, another term, "Information Technology", has grown rapidly.

From its earliest beginnings, at the time when Digital Computers were thought to be at their most useful, employed as nothing more than super fast calculators (*number crunchers*), Information Technology has evolved to the stage where now it is a science of its own: A science growing in parallel with the extremely rapid developments in Digital Electronics.

Information Technology refers to the use of Computers for the purpose of *storing, evaluating, manipulating* and *disseminating* information.

Deep within the intricate framework of this technology there lies the word Database.

In its simplest form "Database" refers to a collection of data. More specifically in Computer terminology a Database might comprise ***one*** simple disk file or it might take the form of several hundreds of disk files. The files that make up a computer database will generally be either DATA files or INDEX files but the DATA files are the prime component. INDEX files just assist with manipulating data. We will explain all of these terms in detail soon.

Disk Files—Are Not Round Folders!

Before we get too far involved with Data, let's examine the PC. We'll explore Hard Disks and Disk Files, we'll cover the building blocks of Electronic Data and meaning of Computer Memory for those who have not yet ventured far enough to learn about these things.

When we refer to a ***disk*** in this instance we refer to a *data storage device* in a computer. They are quite round and flat. Some boffins might not like the following analogy but if you can imagine something close to a cross between an old LP record and a cassette tape, you have a very broad idea of the **nature** of a *storage disk* in a computer.

The LP is *round* and the cassette tape has a *special coating*. A storage disk is also round, spins rapidly and it too has this special coating. The information or data, is read to and from storage by a HEAD that sits just above the surface of the disk. Whilst the disk is spinning the head never touches the disk but it is so close you could not see the gap. The actual distance between the disk and the head is a fraction of the thickness of a human hair. As the disk spins information is read from, or written onto the special coating.

How Does It Happen?

If ever you have seen static electricity jump from one object to another, or from your hand to a door handle, imagine something similar to that but with *magnetic impulses* being transmitted rather than electrical charges.

Each time an impulse is "sent" to the surface of the disk it writes another "bit" of information. In electrical terms these "bits" could be likened to either a positive charge or a negative charge. When you touch the door handle and the static electricity "jumps" between you and the door, that might be regarded as a very positive charge, you certainly feel it anyway because you've been **"Zapped"**.

The special coating on the disk is Iron Oxide, and even though it doesn't actually get zapped by a short, sharp electrical charge *feel quite free to think of it in those terms.* Only a technical minded few will be interested to know that the state of the magnetic flux is altered by reversal of the polarity of a magnet in the read/write head. This is not new technology, we've had tape recorders around us for many years. The first IBM PCs were built with cassette tape connections.

Hard Disks

There are several varieties of disk used in computers. Those that are fitted into the computer and fixed into place, are known as **hard disks**. Disks on which we can store information outside the computer, are known as **floppy disks**. They are not as thick nor as heavy and don't spin as fast as a hard disk. A floppy disk is inserted into a "floppy disk drive", the information is transferred, then the floppy disk can be stored away for future reference. From here on we'll confine this discussion to hard disks, the permanent type.

A hard disk spins continuously at 3,600 revs per minute; that is 60 revs per second. In other words the part of the disk under the Head passes by, and is available for reading or writing 60 times during every second. It may surprise you to know that despite this high speed, disk activity is by far the slowest operation in a computer.

The Head reads or writes only when instructed by the computer. Most heads will transfer "data" to and from the surface of the disk at the rate of about five million "bits" per second. In *very slow motion* you might imagine the *head* going "Zap ... ZapZap ...Zap" as the disk passes by underneath.

That's slow motion! When a head is reading data "from" a hard disk and sending it to the computer at normal speed, many "PC"s have trouble keeping up with this extremely high transfer rate. Even though disk activity is the "slowest" operation, those five million bits of data *(each second)* must be sorted, stored and then made available to the *Central Processing Unit* (**CPU**) in the order required. The sheer bulk of work done **after** the data leaves the disk, can be enough to keep even the fastest processors working flat out.

There is a very simple method employed to slow down the transfer rate so that the computer's electronic memory can catch up with what's happening. Essentially this amounts to the head reading only some of the available data on each revolution. Naturally, the head is then transferring data to the computer at a slower overall rate.

The amount of available data that is read on each revolution varies with the type of hardware used. Irrespective of the hardware though, the setting of this transfer rate, establishes what is known as the disk's *"Interleave Factor"*. We'll discuss this again in little while.

BITS and BYTES—The Building Blocks

Eight (8) of these "bits" make up what is known as a Byte. One Byte stores *"one character"*, for instance the letter "a". The way in which the computer recognizes a character is by the pattern or arrangement of those eight bits. There are 256 different combinations.

By now you may be wondering "what exactly are these BITS?". Let's take a moment to identify them in more precise terms.

Have you ever learnt anything about Binary Numbers? If yes, you will know that the Binary Numbering System uses only "Zero"s and "One"s to represent values. A Binary "One" is stored on disk as a "positive" charge (or magnetic state). A Binary "Zero" is stored as the "negative" charge (or magnetic state). These are known by a variety of definitions, ON/OFF, MARK/SPACE, HIGH/LOW but whatever school or university you attended, they always come back in the end to a simple "0" or "1".

In reality you are most unlikely to get "Zapped" by a "Binary Zero", or hit between the fingernails with a "Binary One", but this old and simple numbering system, comprising nothing but "Zero"s and "One"s, lends itself perfectly to the "Zap..Zap ...Zapping" of impulses onto a thin metal disk.

What more could the computer designers have asked for? Imagine a top level meeting of highly stressed Electrical Engineers in 1940 searching desperately for ways to represent the letter **"a"** with an electric current. It didn't happen this way obviously, but you can easily imagine an enlightened conversation when one says to another ***'Hey, what about the Binary System we learnt at school! Can't we design something that sends a current when we want a "1" and then for "0" we just turn the current off again?'***

Yes, it's as simple as that. Electronic Computers are built on nothing more than "Zero"s and "One"s: **current** or **no current**. We'll come back to the arrangement of those *bits* later.

You may have heard the term **20 Megabyte** Hard Disk. That size of hard disk is capable of storing over 160 million "bits". How many Bytes is that? How many Characters? How many Words, Letters, Books? You should calculate it because the facts can be quite startling. Remember eight "bits" is one letter (or character).

File

File is simply the term used to describe some of the "related items" of data stored on the disk.

*What do we mean by **"related items"**?*

One disk file might contain a thank-you letter or, another item of correspondence. It might contain all of the figures from an Accounting Spreadsheet, or perhaps even some special machine instructions that will run a computer game program.

This grouping of related items is a naturally convenient method of storage. We do it in the office, we keep accounts and receipts in one folder, correspondence in another. We do it in the kitchen with eating utensils in one drawer, pots and pans in the cupboard. It's no different with computers.

Take this article you are reading now for instance and every other article you read in this magazine. They are all stored in individual files on a computer's disk. Someone writing a book might store each new "chapter" of that book as a separate file for convenience. Later the individual files could be joined and sent to the printer as one.

Files take on a huge variety of formats. Likewise there can be some thousands of files on a single computer disk and many different sizes. Sizes will range from just a few "bits" to thousands, even millions of "bits".

This storage is highly organized. Every part of the disk surface is accurately mapped into circular tracks, again like the old LP record. Each file has a specific address, on one or more of those tracks.

Each circular track is divided into sectors. You can visualise what a sector might look like quite simply by imagining the LP divided up into the same sort of wedge shaped sections you would get when you cut a Pizza. I am not recommending here that you start running a sharp blade or a pencil several times across your best LP record in order to test this idea. Use your imagination.

Can you see a problem developing though? Are you beginning to visualize that sectors on a track near the center might be *much shorter* than those sectors on a track near the outside edge of the disk? Won't the tracks at the *wide end* of the wedge be much longer than those located near the pointed end, at the center?

OK, now you understand the principle of a "sector" on a disk. If not, please read the last three paragraphs again because it's extremely important to this part of the discussion. ❑

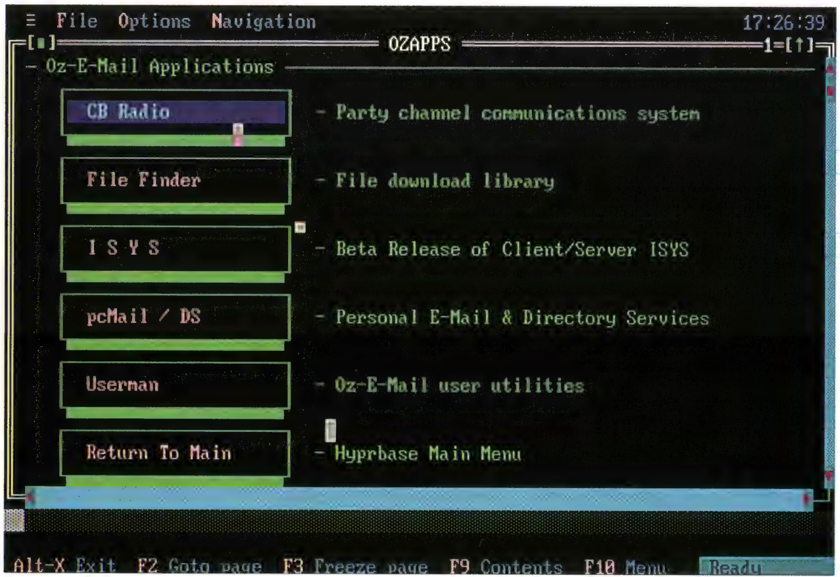
(Continued in October....)

Oz-E-Mail

by John Massey

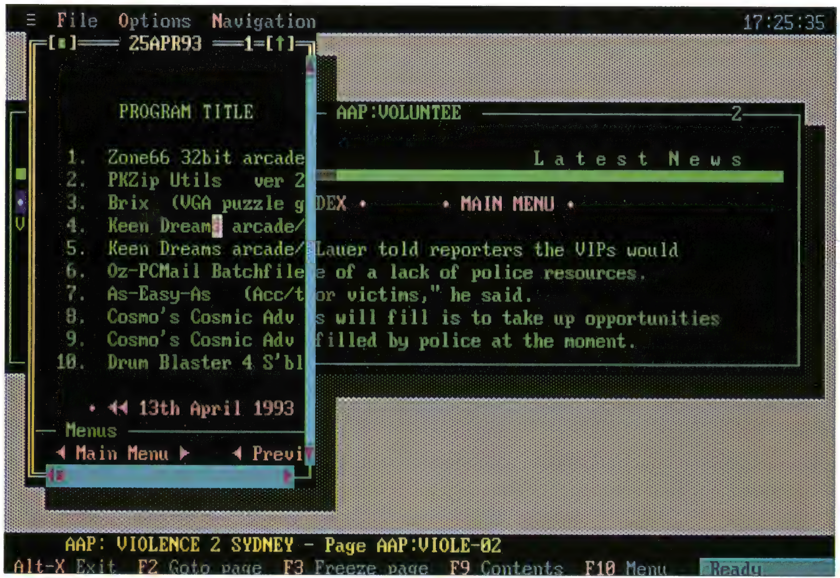
The heart of the system is a client/server relationship between your personal computer and the Oz-E-Mail host server. A mail communications manager (OCM), links your computer (client) with the host server to provide the access to the Oz-E-Mail applications. Users should be familiar with MS-DOS and have a basic appreciation of the concepts of terminate and stay resident programs (TSRs).

OCM and selected client applications can run concurrently online and as TSRs over other DOS based programs. The program needs about 1.2 MB of hard disk space and OCM about 17 kB of RAM as a TSR. A set up program for OCM sets the baud rate, comm port identity pulse or tone dial, modem initialisation string and dial-up number for the service.


≡ File Options Navigation
17:26:39
[▪]
OZAPPS
1=[↑]
Oz-E-Mail Applications
Alt-X Exit F2 Goto page F3 Freeze page F9 Contents F10 Menu
Ready

```
CB Radio         - Party channel communications system
File Finder      - File download library
I S Y S          - Beta Release of Client/Server ISYS
pcMail / DS      - Personal E-Mail & Directory Services
Userman          - Oz-E-Mail user utilities
Return To Main   - Hyprbase Main Menu
```

Oz-E-Mail Applications screen.


≡ File Options Navigation
17:25:35
[▪]
25APR93
1=[↑]
Menus
◄ Main Menu ►
◄ Previ
Alt-X Exit F2 Goto page F3 Freeze page F9 Contents F10 Menu
Ready

```
      PROGRAM TITLE

 1.  Zone66 32bit arcade
 2.  PKZip Utils    ver 2
 3.  Brix  (VGA puzzle g
 4.  Keen Dreams arcade/
 5.  Keen Dreams arcade/
 6.  Oz-PCMail Batchfile
 7.  As-Easy-As    (Acc/t
 8.  Cosmo's Cosmic Adv
 9.  Cosmo's Cosmic Adv
10.  Drum Blaster 4 S'bl

  • ◄◄ 13th April 1993
```

```
- AAP:VOLUNTEE ---------------------------------- 2-
                                    L a t e s t  N e w s
DEX •           • MAIN MENU •

Lauer told reporters the VIPs would
e of a lack of police resources.
or victims," he said.
s will fill is to take up opportunities
filled by police at the moment.
```

```
AAP: VIOLENCE 2 SYDNEY - Page AAP:VIOLE-02
```

AAP News

A detailed reference manual is supplied with the communications package. It is well laid out but requires patience and persistence to read and digest. It is well worth the effort of sitting down with pencil and paper and pulling out the salient points before delving headlong into the program. Attention is drawn to the load sequence of the TSRs and the conflict with communication ports under Windows.

Since this is a first look at the basic communications package running on a single client to server host connection, I'll leave the integration with a LAN based client system to our LAN experts for comment.

- **Client System** (Your Personal Computer) To use OZ-E-Mail, the client must connect to the system, enable file transfer between client and server systems and identify the client to the server system.
- **OCM.** This is the client - server communications utility OCM dials up the server via your modem and establishes a connection with the server.
- **FTSR.** FTSR is a file transfer utility to enable file transfer between your personal computer and the host server.
- **LOGON-LOGOFF.** LOGON identifies the client system to the host system and provides access to the server applications

A simple batch file is a convenient way to load OCM, FTSR and LOGON.

- **Server Applications** (OZ-E-Mail Applications). The server applications may be used individually as terminate and stay resident programs (TSRs) or accessed from the shell program HYPRBASE.
- **HYPRBASE.** A shell program to log on and run server applications and view information from news services via hypertext based "windows".
- **FILEFIND.** A search program and utility searches by file name, file date, limited to all or selected libraries, or key word searches, the operand "OR" is used for multiple key word searches.
- **USERMAN.** This application manages the client system; password, personal account details, fees and transaction history and incoming/outgoing mail
- **DS.** A utility to provide access to the user database.
- **CB.** Provides access to a chat type, on-line session, user to user.
- **PCMAIL.** PCMail is the E-mail part of OZ-E-Mail. It provides options to store mail on server system, down load to a nominated system or output to a fax. Down load mail to your system, compose messages to send or redirect to an out tray for future upload to the server system.

The output includes E-mail with PCMail to any host system mailbox, any LAN based system running MHS compatible or Microsoft mail, international E-mail to any MCI subscriber, Fax to any national or international subscriber, and letters to any national/international address. PCMail may be used in off-line mode to compose, read or delete messages and queue messages for transmission at the next logon.

The focus of the service is E-mail but access to News, a Shareware library

Games line and CB line is provided. Local call access is available in Brisbane and the system operates on a fee-for-service basis with the user paying only for those rvices that are accessed. Transaction fees are charged r specific services like downloading Shareware ograms.

ne cost for connect time to the system is $2 per hour ith a pro rata rate). As a guide, E-mail is charged at base rate of $0.10 per 1000 characters and fax arges are around $1.00 for a two page fax from/to risbane. Yes, you can send a fax from your system to a dicated fax machine.

the title states, this is a first look and as such only overview of the service is presented. Rather than troduce more variables into the evaluation, I selected run this DOS program as a pure DOS program. A indows version of the communications program will released later this year.

mmunications Software is available from Oz-E-Mail, vel 1 McDonnell Douglas House, 39 Herbert Street, Leonards NSW 2065. Phone (008) 805 874.

printed from Significant Bits, the journal of the isbug PC Users Group.

urther Comments by Darryl Impey

hat's In the Box

- 2400FI Faxmodem (internal) and manual by Interlink Electronics Vic, Australia.
- Quicklink II (DOS) communications/fax software two disks and manual by Smith Micro Software USA.
- Oz-E-mail Ver 1.2 Basic communications pack software and manual by Oz-E-Mail St Leonards NSW, Australia.

nuals

e FaxModem manual is comprehensive. The -E-Mail manual is clear and easy to follow. It ludes screen shots and a good level of detail on the propriate services and functions provided by -E-Mail. The QuickLink II manual is OK for those at don't read manuals, I did refer to the manual veral times for information on settings etc, metimes finding what I was after. At other times I nd the best help was from the online context nsitive help inside QuickLink II.

00FI FaxModem

e 2400FI FaxModem worked faultlessly throughout review period in either mode of operation.

ick Link II Fax & Communications

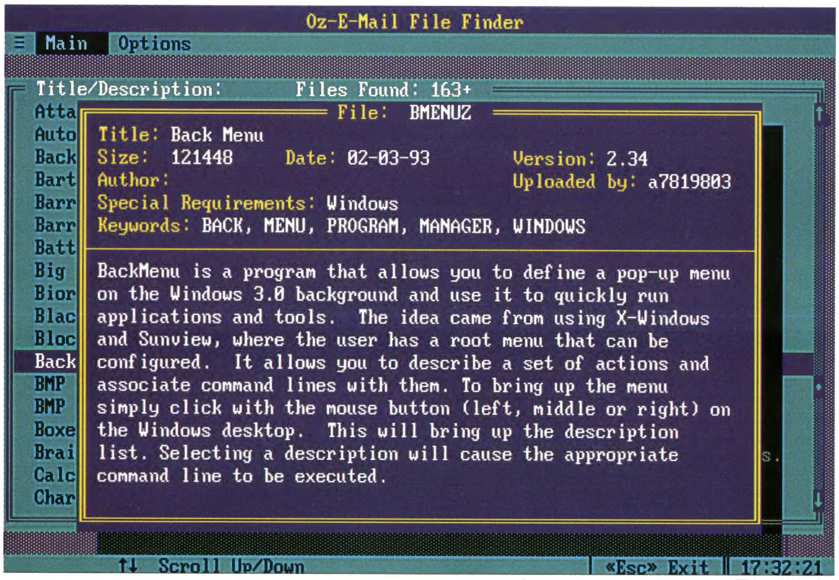
e fax background send/receive operation worked iably; while working inside an editor the phone rang, l the fax receive operation intercepted the fax call in ckground mode allowing me to continue with my rk inside the editor. The interface is at best ordinary, l it could have used a status bar at the bottom of screen to inform the user of the current activity at y time.

-E-Mail

at's so special about Oz-E-Mail? Besides the fact t it offers the usual features of basic nmunications services, Oz-E-Mail employs a r-to-peer architecture based on packet-driven nmunications. Your PC does not act as just a dumb minal, but rather has the ability to run nultaneous applications while online. While logged to Oz-E-Mail I was able to download a file from the ine database, while simultaneously reading the est computer business news from the USA. The file transfer continued without error while I read an E-Mail message from Oz-E-Mail.

Without knowing the exact techniques used by Oz-E-Mail, I would presume that it employs a buffering technique to download different packets of data in a foreground (E-mail) and background mode (file transfer), relative to the applications running at any one time. Oz-E-Mail can communicate with whole networks of PC users through a single gateway, any user on a LAN linked to Oz-E-Mail can send an E-Mail message across Australia or around the world.

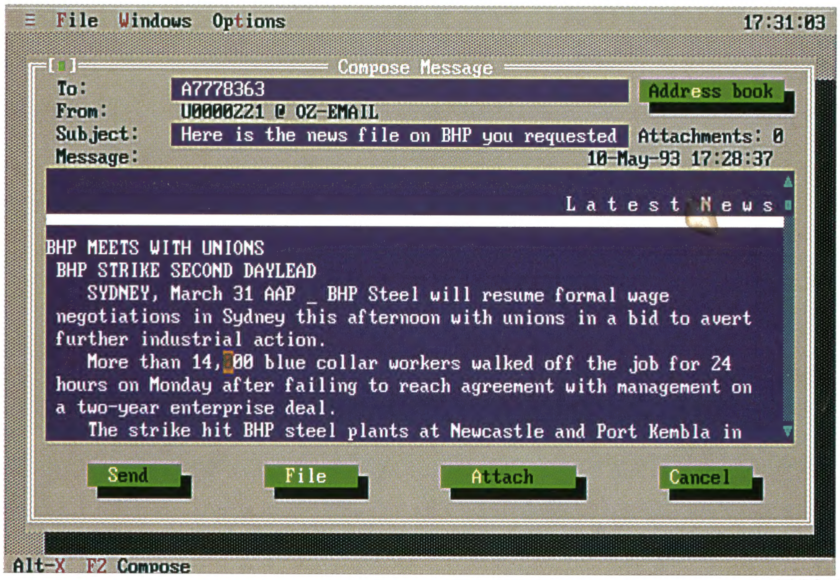
Two features deserve a mention: ISYS text retrieval can be utilised to search the AAP (Australian Associated Press) database for topics of interest. I chose to search on "Borland" and up popped a multitude of text based documents. The other feature of interest was the ability to find other users of Oz-E-Mail through their name or business/company name, a useful feature that then displayed a dialog box with their E-Mail number. It also has the facility to paste into the E-mail address field, the User ID of the person you had searched for! ❑



```
Title/Description:        Files Found: 163+
Atta              File:  BMENUZ
Auto  Title: Back Menu
Back  Size:  121448      Date: 02-03-93          Version: 2.34
Bart  Author:                                    Uploaded by: a7819803
Barr  Special Requirements: Windows
Barr  Keywords: BACK, MENU, PROGRAM, MANAGER, WINDOWS
Batt
Big   BackMenu is a program that allows you to define a pop-up menu
Bior  on the Windows 3.0 background and use it to quickly run
Blac  applications and tools.  The idea came from using X-Windows
Bloc  and Sunview, where the user has a root menu that can be
Back  configured.  It allows you to describe a set of actions and
BMP   associate command lines with them. To bring up the menu
BMP   simply click with the mouse button (left, middle or right) on
Boxe  the Windows desktop.  This will bring up the description
Brai  list. Selecting a description will cause the appropriate
Calc  command line to be executed.
Char

    ↑↓ Scroll Up/Down                          «Esc» Exit  17:32:21
```

File Finder



```
                                                          17:31:03
                        Compose Message
 To:          A7778363
 From:        U0000221 @ OZ-EMAIL
 Subject:     Here is the news file on BHP you requested  Attachments: 0
 Message:                                       10-May-93 17:28:37
                                                    Latest News
BHP MEETS WITH UNIONS
 BHP STRIKE SECOND DAYLEAD
    SYDNEY, March 31 AAP _ BHP Steel will resume formal wage
negotiations in Sydney this afternoon with unions in a bid to avert
further industrial action.
    More than 14,000 blue collar workers walked off the job for 24
hours on Monday after failing to reach agreement with management on
a two-year enterprise deal.
    The strike hit BHP steel plants at Newcastle and Port Kembla in

Alt-X  F2 Compose
```

E-Mail

Volunteer of The Year 1993

NOMINATION FORM

I ____

(Name of Nominator)

Membership No ______________

hereby nominate

____

(Name of Nominee)

as Volunteer of the Year for 1993.

I am nominating him/her as Volunteer of the year because of the following service(s) to Melb PC:

____

____

____

____

____

Signed: ________________________

Conditions of entry

Any financial member is eligible to vote and only one vote per member will be accepted. All financial members are eligible nominees. No vote will be accepted unless both the nominator and nominee are financial members as at 1 November 1993 and the nominator has completed this form with full name, membership number, nominee's full name, details of reason(s) for nomination and signature. Votes are to be addressed to:

Volunteer of the Year Organiser
Melbourne PC User Group Incorporated
PO Box 283
South Melbourne 3205

Voting closes last mail 29 October 1993 with presentation on 1 December 1993 at the Monthly Meeting.

Monthly Meeting

Clunies Ross
Conference Centre
191 Royal Parade, Parkville

6.00 P.M.
First Wednesday
each month except January

See map on mailer for directions/location

Attention Vendors:

The 1994 calendar is now open. If you would like to present your product or service to members of the largest User Group in the Southern Hemisphere contact:

Hayden May, Meetings Coordinator
Fax (03) 887 8185
or
Janet Henstock, Operations Manager
Phone: (03) 699 6222
Fax: (03) 699 6499

1993 Meeting Calendar

Date	Presenters	Topics
1 September		Multimedia Evening
	IBM	
and	*Graeme Ambrose* *from **Graphic Decisions***	
6 October	Annual General Meeting and Elections	
and presentations by	***Symantec***	
and	***Lotus***	
3 November	***Hewlett-Packard***	Networks
	Special International Guest	
and	***Computer Associates***	DBFast, Windows development tools
1 December	***Borland International***	Groupware
and	***Compaq***	New product releases

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Cybec	55
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JED Microprocessor	39
MicroHelp/MicroBee	23
Nilsen Computer Technologies	45
Pagination	41
PC Swap Meet & Expo	25
Solutions by Design	19
Worsley Press	33

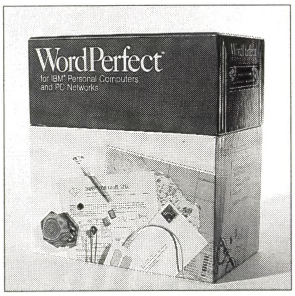
If you

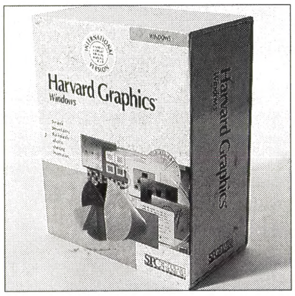
write it

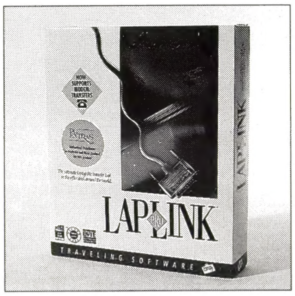
interpret it

present it

or move it







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